

# THE MILLING WORLD

AND

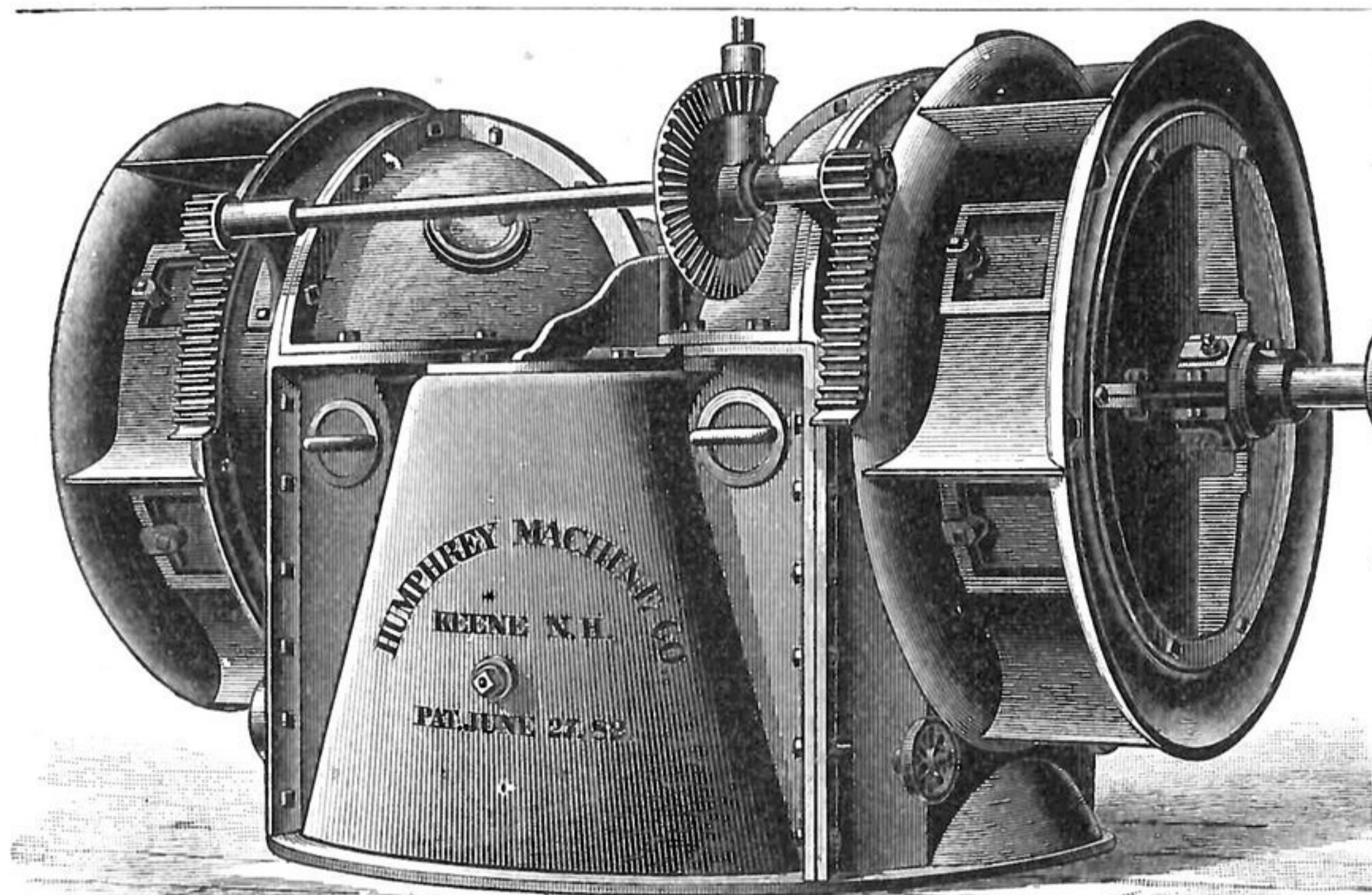
CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

VOL. XXIII. No. 10.

BUFFALO, N. Y., NOVEMBER 3. 1890

\$1.50 PER YEAR.

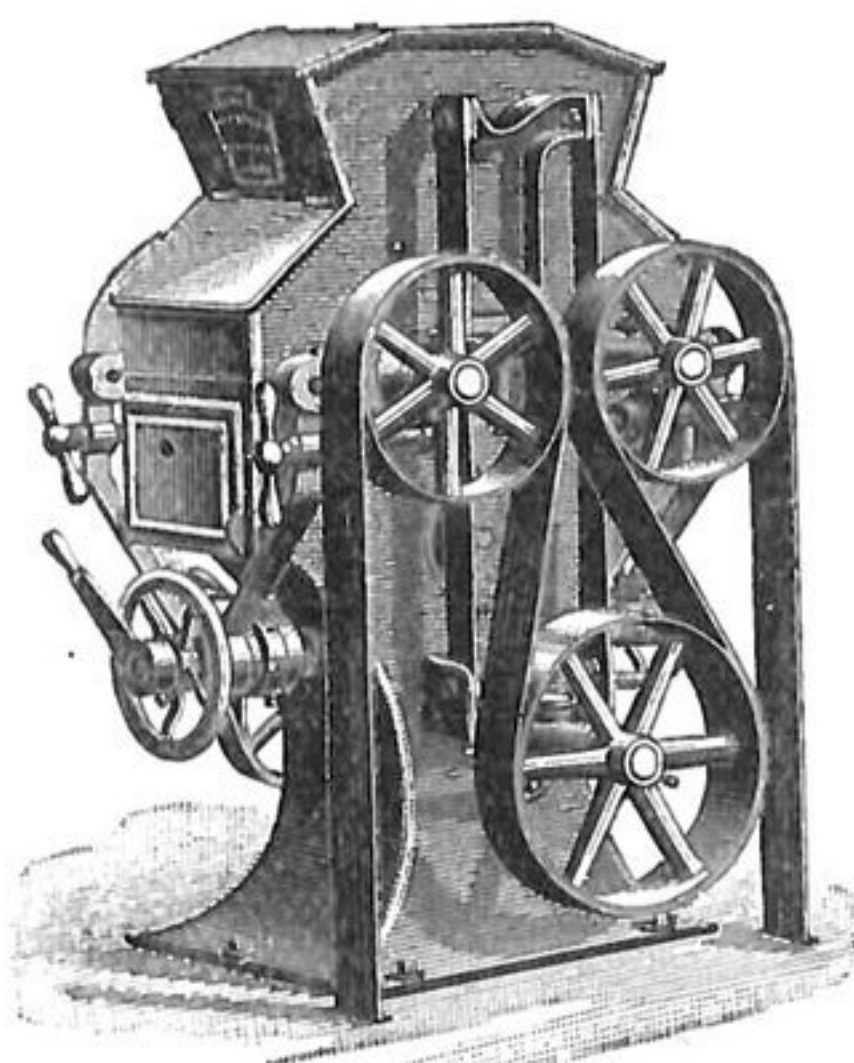


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On Horizontal Shaft. Saves cost, annoyance and loss of power incident to use of gears. Affords more available power from water applied at full or part gate than any other. The cheapest, best and most desirable Water Wheel yet produced.

EFFICIENCY, ECONOMY and EXCELLENCE FULLY GUARANTEED.  
**Humphrey Machine Co**

KEENE, - - N. H.



"Keystone" 4-Roller Wheat Mill.

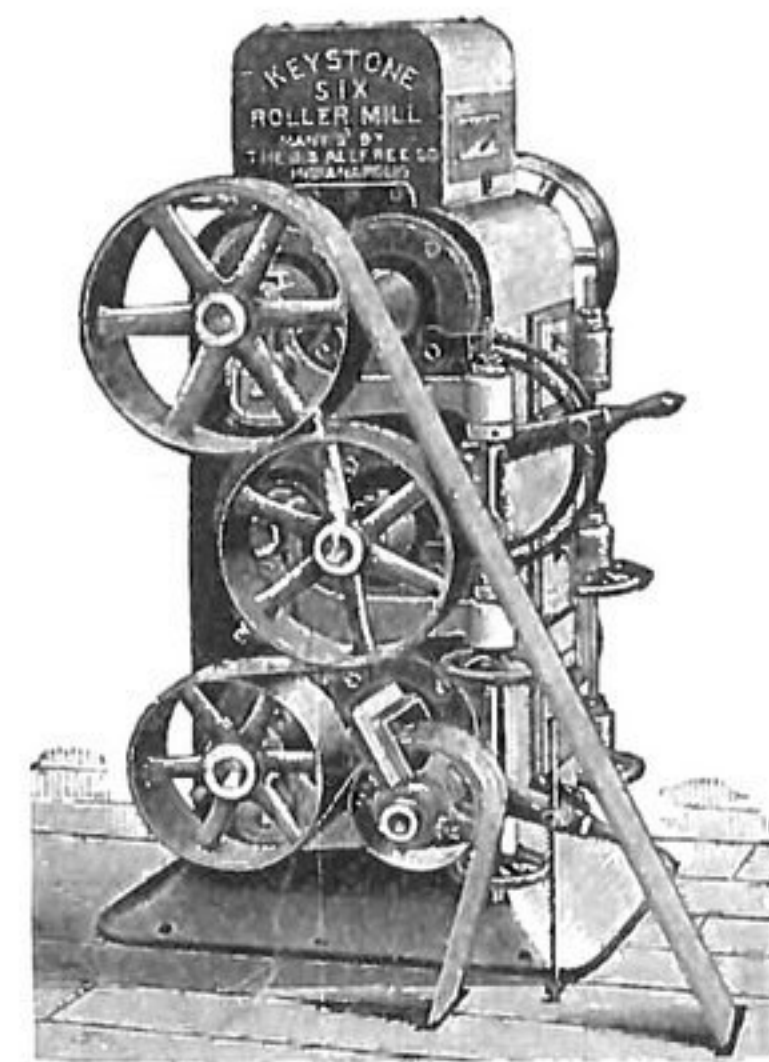
## FLOUR MILLS. CORN MILLS. HOMINY MILLS.

THE BEST MILL THAT HAS EVER BEEN BUILT IN GREENE COUNTY, PA.

THE J. B. ALLFREE CO. WHITELEY, PA., AUG. 27, 1890.  
GENTLEMEN: After running my 25-bbl. mill over one month I feel it my duty, and in justice to you, to state that I am more than pleased with the mill you built for me; it started like a clock from the word "go." Before making my contract I made careful inspection of the different systems and machinery in the best mills, and now feel that I have made no mistake in awarding you the contract. I am well satisfied that your guarantees have been more than fulfilled as regards percentages, yield and capacity. I undoubtedly have the best mill that has ever been built in Greene County, Pa. which, together with the superior quality of wheat, enables us to turn out grades of flour that are unequaled, and reports which I have received from expert bakers fully substantiate this statement. My clean-up is equal to any 25-bbl. mill in the State. I will say that "The J. B. Allfree Rolls and Flour Dressers" can not be beaten in the world for light running and ease of access to all their parts. I would advise any miller building a new mill or remodeling an old one, to place their contract with The J. B. Allfree Co. Thanking you for the prompt and efficient manner in which you built my mill, and wishing you continued success, I remain,  
ANDREW LANTZ.

SEND FOR CIRCULAR OF OUR 6-ROLLER CORN AND FEED MILL.

THE BEST IN THE WORLD TO-DAY.



"Keystone" 6-Roller Corn & Feed Mill.

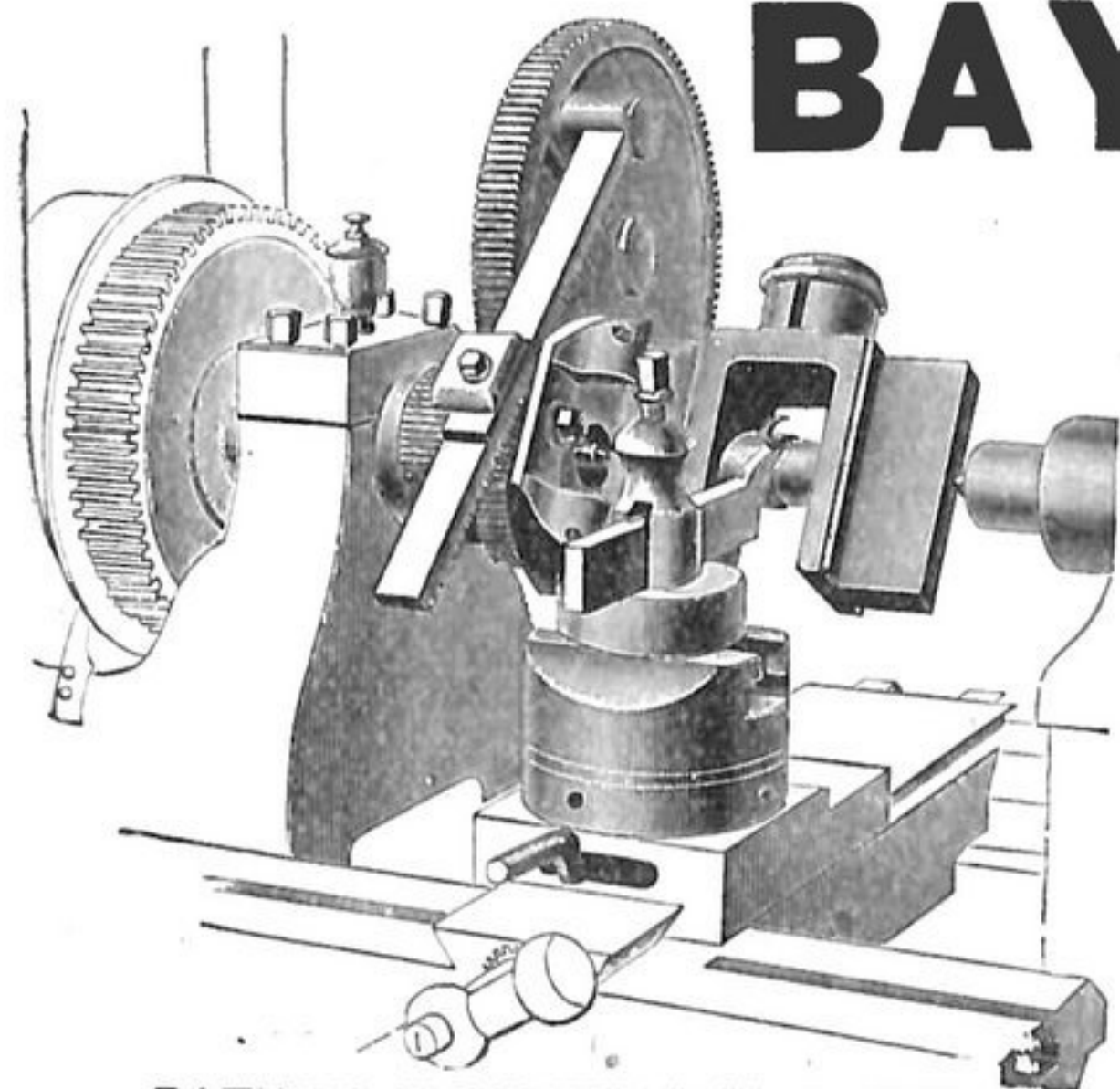
ADDRESS THE J. B. ALLFREE CO., 76 to 86 Shelby Street, INDIANAPOLIS, IND.

## BAY STATE IRON WORKS

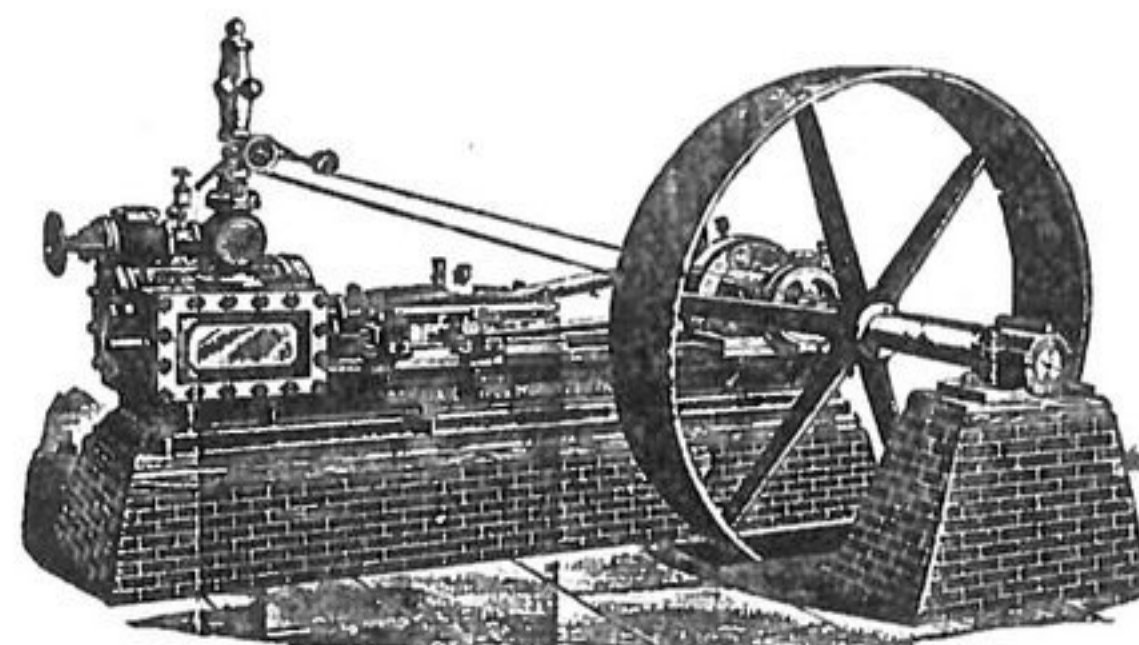
— MANUFACTURERS OF —

## Engines, Boilers & Hoisting Machines

Also the Patent Cross-Head Machine and Acme Cube Pipe Tongs. We make either Center or Side Crank Engines, on same bed. Make engines from 5 to 250 Horse-Power. Have over 3,500 Engines and Boilers and over 1,000 Hoisting Machines in use, and all giving good satisfaction. Send for Catalogue and Prices.



PATENT CROSS-HEAD MACHINE.



HORIZONTAL ENGINES.

**Noble & Hall, Box 462, Erie, Pa.**

# OFFICE OF CASE MANUFACTURING COMP'Y COLUMBUS, OHIO.

## The Case Roller Mills. Over 14,000 Pairs in Use.

PLEASE READ OUR DESCRIPTION OF THEM, EVERY STATEMENT OF WHICH IS ABSOLUTELY TRUE.

PLEASE READ WHAT MILL OWNERS SAY ABOUT THEM.



The accompanying cut is a correct illustration of our latest improved Four Roller Mill. For fine work, great durability, simplicity, and general excellence, they stand "head and shoulders" above all others.

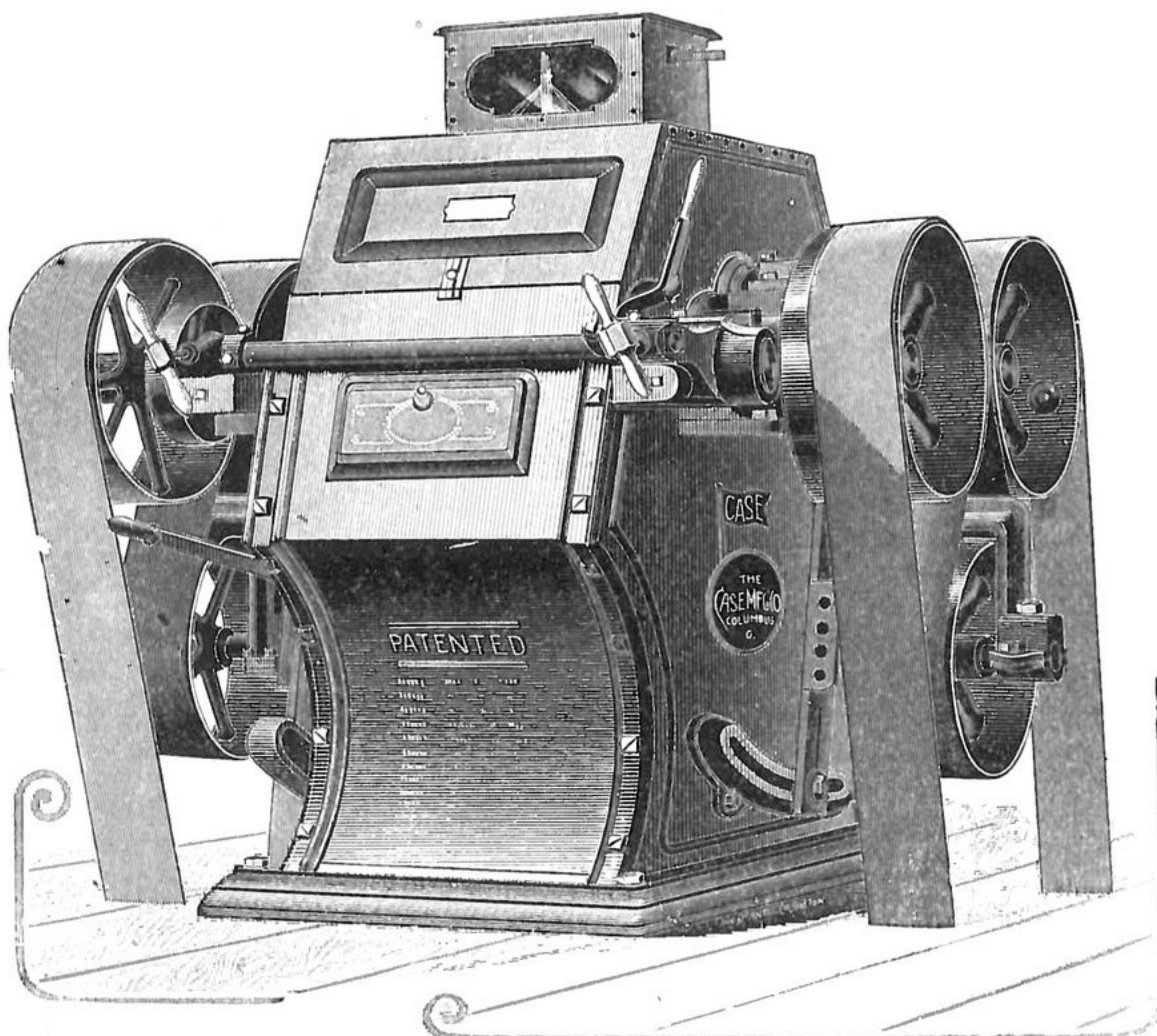
The frame is of iron with a heavy iron base.

The wood-work in top is of select cherry and black walnut, carefully shellacked and varnished.

The handles of adjusting screws and levers are finely nickel plated.

The joints are tight and dustless.

The adjustments easy, simple and perfect.



The roll bearings are wide and finely babbitted.

The belt drive is positive—no little short belts to slip.

The door for examining stock is a great convenience.

The arrangement for leveling rolls, simple and accurate.

The rolls can be thrown apart their entire length by one movement of the lever, and brought back again to original position, requiring no re-setting or experimenting.

Each machine is provided with our AUTOMATIC VIBRATING FEED, which requires no attention, and never fails to spread the feed the entire length of the rolls.



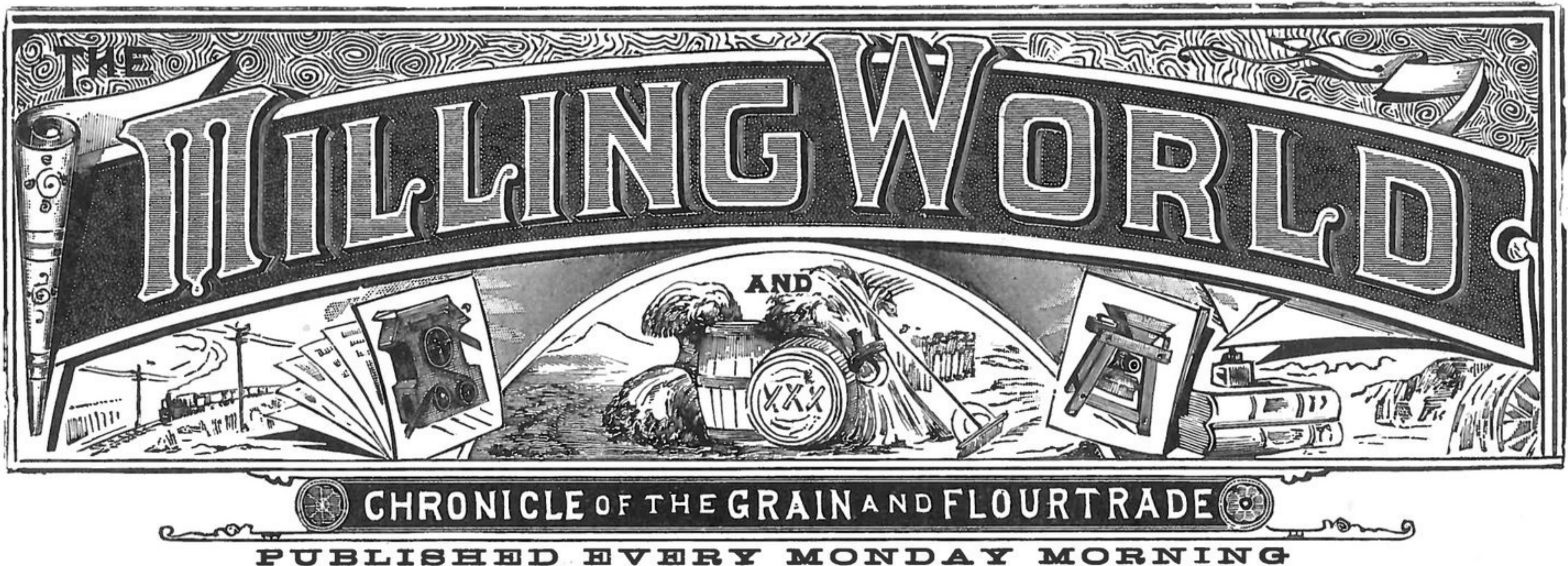
# LISTEN! MICHIGAN MILLERS TALKING NOW.

CHARLOTTE, MICH., AUG. 5, 1890.

MESSRS. CASE MFG. CO., COLUMBUS, O.

Gentlemen: The mill is running fine. We are enjoying quite a fine little trade. Already have put over twenty tons of flour on the market here since we started the 7th of July, and it is giving elegant satisfaction. Every one who has seen our outfit pronounces it A 1, and the Case Automatic Feed can't be beat. In fact the Rolls are models of perfection. We are making a close finish and placing our goods alongside of the long system mills, carrying off the cake. We are highly pleased with the millwright work, and find your Messrs. McKenie and Shough congenial gentlemen to do business with.

Very truly yours, PERKINS & MOON.



VOL. XXIII. No. 10.

BUFFALO, N. Y., NOVEMBER 3, 1890.

\$1.50 PER YEAR.

WILL the Consolidated Roller Mill Company invite any further adverse decisions in the courts, or will they quietly pay off and discharge their expensive "legal talent," tie an old buhr to the Odell and Gray claims and drop them into the nearest mill-dam, and let everything go by default? There may be a possibility of glory ahead in litigation, but it is coupled so closely with enormous expenses and uncertainties of all sorts that the game, even could it be won, would not pay for the candle.

THE Minneapolis "Yahoo" rises to remark that some person lies. The occasion for the "Yahoo's" characteristic outburst is the statement made by one of the members of the Pennsylvania Millers' State Association, in the late Reading convention, that the Millers' National Association is supported by only one journal, which it pays for support. It is easy to believe the mismanagers of the National capable of a good deal of fatuity in management, but it is not easy to believe their fatuity to be so great that they would even think of "paying" the "Yahoo" for its support, even though its price were set fairly, for instance at \$000,000,000,000.00. There must be a mistake somewhere.

THE Minneapolis "Yahoo" is out as a philanthropist. His heart is wrung with anguish to think that the reformed tariff has thrown European manufacturers out of business and laborers out of employment. Of course the silly "Yahoo" does not know that the European manufacturers and laborers, whose sad situation saddens his gentle heart, were living on the ruins of industries that formerly flourished in the United States, and that were crushed by a reduction of tariff that let in the pauper-wage wares of Europe. The reformed tariff will simply give American manufacturers and laborers what belongs to them, and what should never have been torn from them by unwise reductions in tariffs. All the same, it is highly amusing to see the tears of the "Yahoo," whether it be over the woes of the Europeans or over the untimely death of that excellent "milling" journal, "La Panaderia Espagnola." The sight of Willie Edgar turning from pure "Yahooping" to sympathize with foreign economic distress is a sight calculated to make strong men weep and to drive prohibitionists to drink.

EUROPEAN views of American subjects are entertaining. Our esteemed cotemporary, the London, England, "Miller," in a late issue says: "Calculations have been made to show that by January, 1894, the United States will have a population of 72,000,000, which will require in staple crops an area of 226,800,000 acres, and allowing an addition of 12,000,000 acres to be made to the cultivated land in the interval, there would be by the time named a deficit of nearly 4,000,000 acres, which, of course, will make prices go upward at a very rapid rate. If these calculations be correct, they show that American farmers are about to enter on a new era of prosperity, which also means a decrease in the quantity of flour exported from the United States on account of better home prices. In India nothing beyond the extension of its railway system and the introduction of

threshing implements is needed to drive American flour completely out of the markets on this side of the Atlantic. These improvements in India will be quickly made when the redeeming qualities of Indian wheat are understood." Then it is to be feared these improvements will not soon be made, as nobody seems able to "understand the redeeming qualities of Indian wheat." If the increase in population in the United States implies the absorption of all the American flour for the American consumption in 1894, what is the idea of developing Indian railways to "drive" American flour out of the European markets? If in 1894 we are to need all our flour at home, how can any of it be "driven out" of European markets? We are seeking light. We grope when we read European views on grain in the United States and India.

ANOTHER decision goes on the record against the claims of the Consolidated Roller Mill Company. This decision was made by Judges McKennan and Acheson, in the United States Circuit Court for the Western District of Pennsylvania, in September, in the infringement suit of the Consolidated Roller Mill Company against R. R. Walker. The suit included two patents, one by U. H. Odell and the other by Wm. D. Gray. The Odell patent was disregarded altogether by the judges, and the Gray claim was hammered into dust and thrown out of court. It seems to be the unanimous opinion of the judges and experts that Odell has no case at all, and that Gray invented nothing, but simply employed prior inventions in his patent No. 228,525, on which this suit was brought. The firms in the Consolidated may learn, in a score of years and at the expense of thousands of dollars, what the millers, milling engineers, experts, inventors and milling-machinery manufacturers already know, namely, that any attempt to "corner" the roll business in this country is sure to fail. In face of the citations of the Nemelka, Lake, Mechwart and other roller-mill patents, which cover all the chief points in the Gray claims, it is not easy to understand why the Consolidated Roller Mill Company should persist in pushing these so-called claims. Of course, there is the inducement of millions of dollars in royalties in case they succeed in establishing their claims, but between them and their object lie all the probabilities of failure, all the certainty of being unable to make out their case. Now that Judges McKennan and Acheson follow Judges Gresham and Blodgett, it will be interesting to watch the course of the Consolidated firms. They must begin to see by this time that legal advice and talent, even of the high order employed by them, can not always succeed in forcing judges and disinterested experts to give a claim a favorable decision against all fact, all probability and all precedent. The millers of the United States, at least the vast majority of them, are directly interested in the Consolidated suits, and the McKennan and Acheson decision will be good news to them. The Consolidated Roller Mill Company thundered very loud in the index, but it is piping smaller and smaller as "finis" approaches. Meanwhile, although the Consolidated lawyers are making big money, this latest decision throws another protective bulwark around the flour-makers of the United States.

# The DAWSON ROLL WORKS CO.

## FOUNDERS & MACHINISTS,

—MANUFACTURERS OF THE—

# Dawson Roller Mills

—AND FURNISHERS OF—

## CHILLED IRON ROLLS

WITH DAWSON PATENT CORRUGATION.

ALL STYLES OF FLOUR MILL ROLLS RE-GROUND AND  
RE-CORRUGATED WITH ANY FORM OF CORRUGATION.

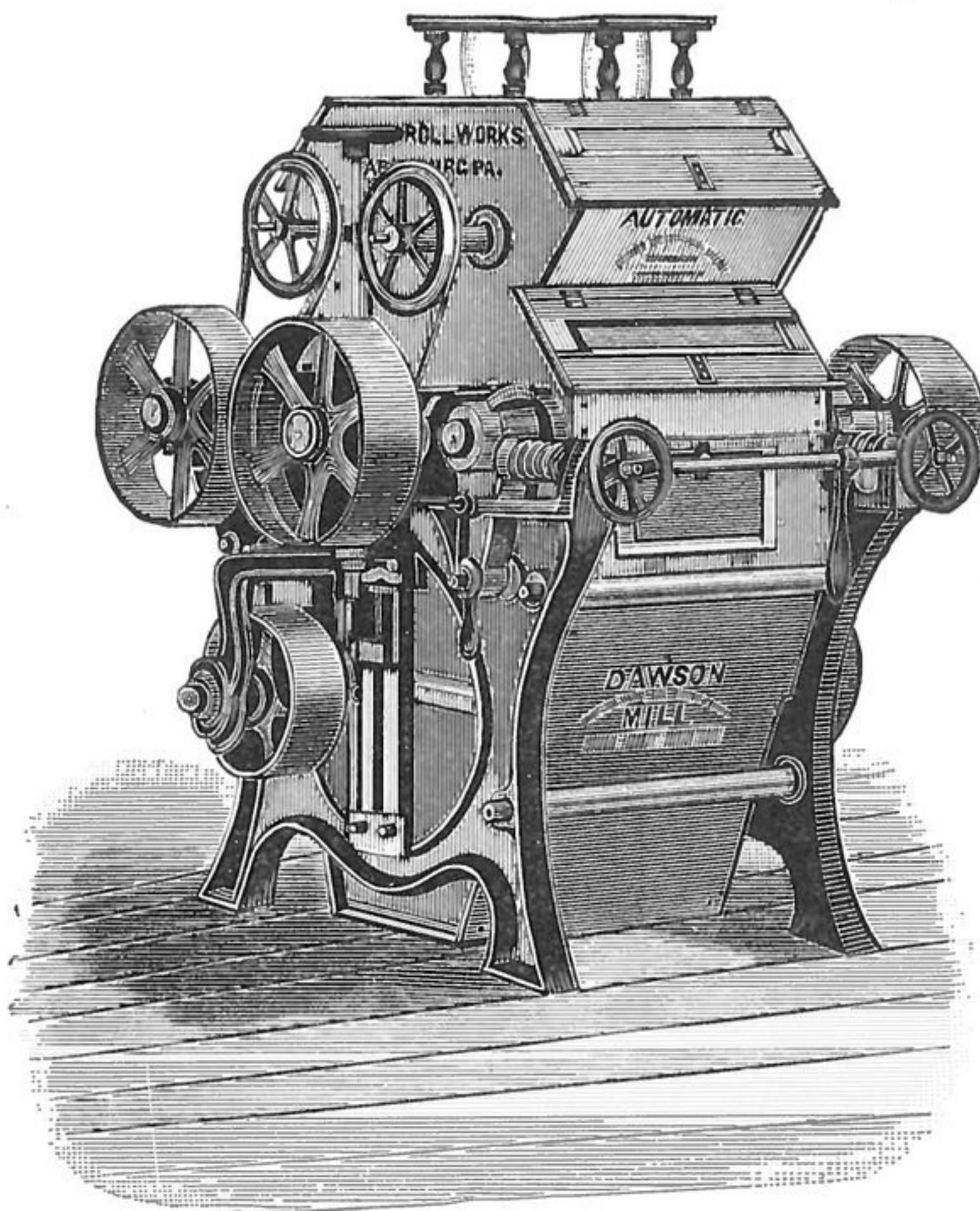
We have had large and extended experience in grinding and corrugating chilled rolls for milling, and have one of the largest and most improved plants in the country for this work, which enables us to meet the most exacting requirements of the trade promptly.

ORDERS AND CORRESPONDENCE SOLICITED.

# DAWSON ROLL WORKS CO.

South and Short Streets,

HARRISBURG, PA.



BEST STEEL SAFETY MADE FOR  
**\$35**

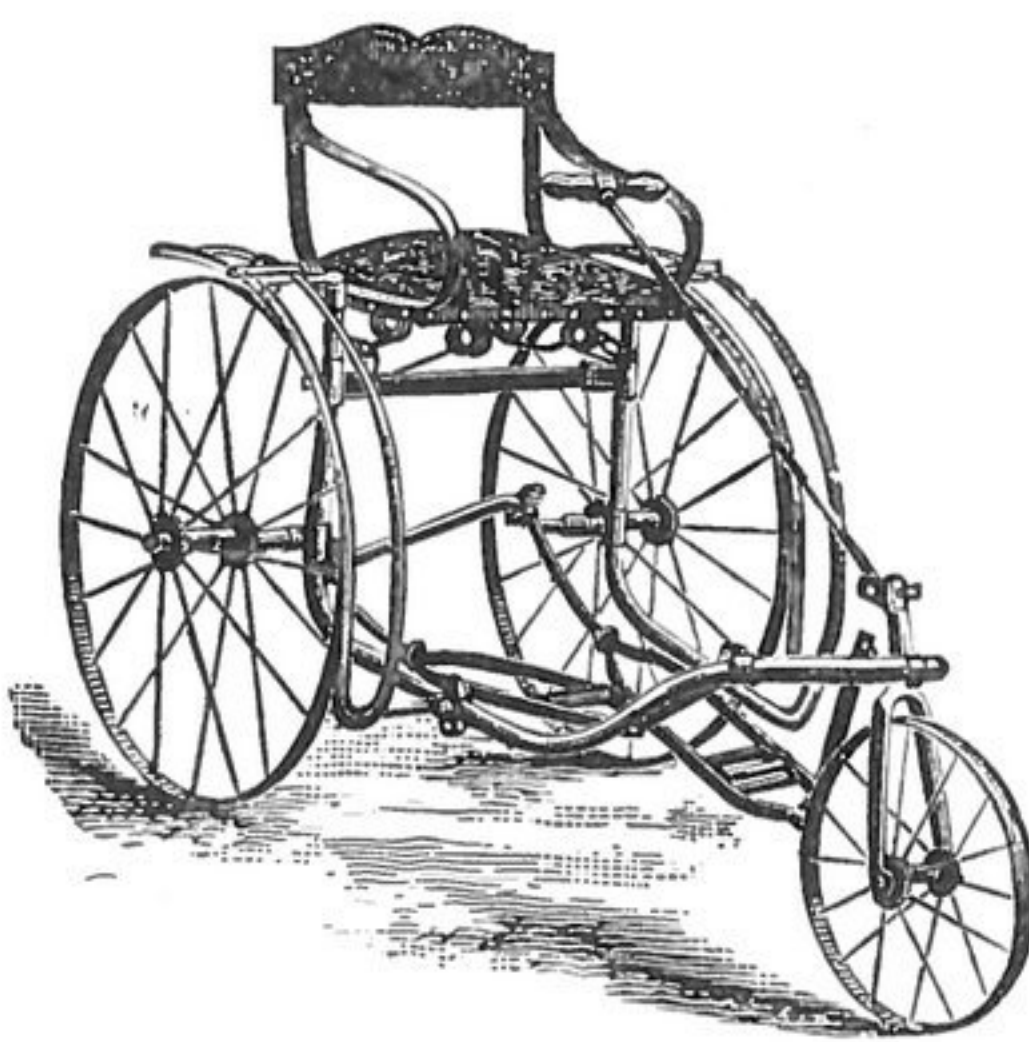
### Easiest LADIES' Tricycle Known

*Our Tricycles the Only Machine ever Recommended by Physicians for Ladies and Girls of a Delicate Constitution.*

### THE BUFFALO TRICYCLE CO.

Manufacturers of Ladies' and Girls' Tricycles, Ladies' and Boys' Safety Bicycles, Etc., Etc.

640 Linwood Ave., **BUFFALO, N. Y.**  
SEND FOR CATALOGUE AND PRICES.



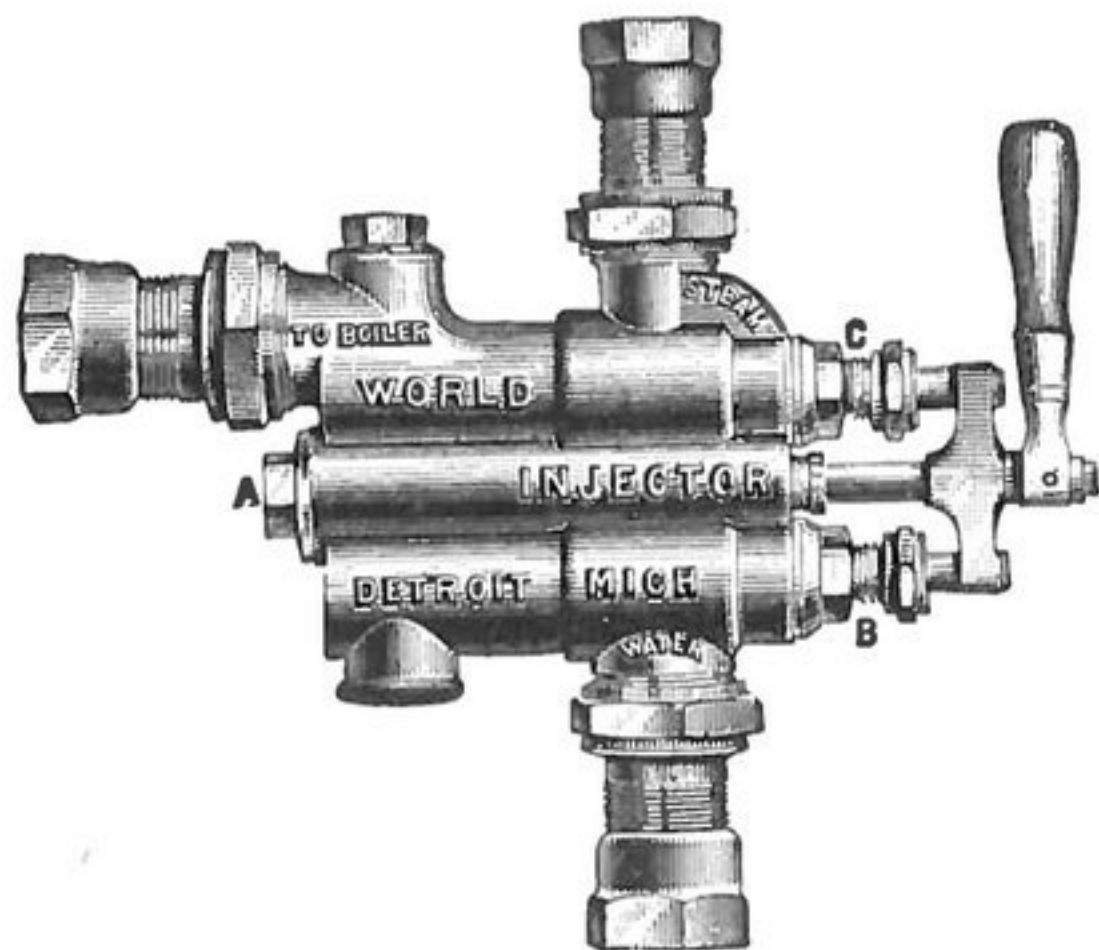
## The Grand Hotel

LOCKPORT, NEW YORK.

Remodeled last year. Refurnished entirely with new and elegant furniture. Fitted with all modern improvements, including Electric Lights, Steam Heat, Call Bells, Elevator, Etc.

FREE BUS TO ALL DAY TRAINS.

**W. C. COMSTOCK, PROP.**



**THE** Best is the Cheapest. Whenever you want a Boiler Feeder that will prove reliable under all circumstances, buy the **WORLD** Injector. It is absolutely the simplest and safest to operate and handle of any injector now on the market, **FOR** it is operated by a single lever only. In whatever territory you find these reliable World Injectors on **SALE** they are always guaranteed by the seller.

**GOLD** is good in whatever part of the world you may travel, and the "**WORLD** Injector is worth every **DOLLAR** it will cost you. Catalogue containing Price List, valuable tables, and useful facts, figures and information **SENT** to engineers, machinists, and all interested in a perfect working injector, post-paid, upon application, **FREE**

**AMERICAN INJECTOR COMPANY,**

175 Larned Street West, DETROIT, MICH.



PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,  
Buffalo, N. Y.  
McFAUL & NOLAN, - - - PROPRIETORS  
THOMAS MC FAUL. JAMES NOLAN.

#### SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in un-registered letter at sender's risk.

To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

#### ADVERTISING.

Rates for ordinary advertising made known on application. Advertisements of Mills for sale or to rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisement taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.

Orders for new advertisements should reach this office on Friday morning to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

#### EDITOR'S ANNOUNCEMENTS.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

**THE MILLING WORLD,**  
BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

#### SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1 cent for each additional word. Cash with order. Four consecutive insertions will be given for the price of three.

#### SITUATION WANTED.

Head miller with over 20 years experience want to make a change this spring. Address, A. MILLER, 67 Weaver Alley Buffalo, N. Y. 4t

#### SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 3 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office 10 cents must be added to pay postage.

#### WANTED, TO RENT.

A good Custom Mill, in a good grain section. Steam or water power. Address, MILLER, P. O. Box 170, Pocomoke City, Worcester County, Md. 252

#### FOR SALE AT A BARGAIN

I have a half interest in a Short System Roller Mill which I will sell at a bargain. Don't write unless you mean business. Address, GEO. FOSTER, Wakeman, O. 47

#### FOR SALE.

One No. 1 Howes, Babcock & Co., Silver Creek, N. Y., Lengthened Scourer and Smutter, nearly new. Address, CHAS. SCHOEPLIN & BRO, Gardenville, N. Y. 46

#### FOR RENT.

Clinton Mills, at Black Rock, Buffalo, for rent on reasonable terms, recently repaired and put in good order. Apply to CHAS. DANIELS, over 311 Main Street, Buffalo, N. Y. 6tf

#### FOR SALE.

Rare chance, Grist, Saw, Planing Mill, Lumber and Coal Yard, doing good business. Growing village; 15 miles from Washington. Owner wishes to retire. Small capital needed. Terms easy. A. FREEMAN, Vienna, Va. 37

#### FOR SALE

Whole or part of a 125-barrel Flouring Mill, built entirely new from ground up. Equipped with latest machinery. Side track at mill door. Located in South Michigan. Big local and exchange trade. For further particulars address B. B., care of THE MILLING WORLD. 37

#### FOR SALE.

Flour and saw-mill with or without farm of 38 acres. Four buhr mill, with machinery and building in most excellent condition. Buildings on farm good. Good run of custom. Can run by water 9 months, also have steam power. Terms easy. On Big Indian Creek, ¼-mile from Crandall, on Air Line. Mrs. C. KRACKMAN, Crandall, Ind. 36

#### MILL MACHINERY FOR SALE.

One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.  
One 20-Inch Under-Runner Portable Mill, French Buhr Stone, capacity 10 to 12 bushels per hour; new, best make.  
One 14-Inch Vertical Feed Mill; best make, new, a bargain.  
One No. 6 Dustless Separator; new, a bargain.  
One No. 1 Full Rigged Combined Dustless Separator; new, a bargain.  
Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.  
Three No. 1 Corn Shellers, capacity 200 to 300 bushels per hour; new.  
One No. 2 Purifier. New. Best make. A bargain.  
One 20-Inch Portable Mill.  
One 18-Inch Double Gear Portable Mill.  
For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5tf

#### FLOUR MILL WANTED.

Flouring-mill wanted at Evart, Osceola Co., Mich. Good wheat region, large territory. Correspondence solicited. GEO. W. MINCHIN, Evart, Osceola Co., Mich. 69

#### FOR SALE AT A GREAT BARGAIN.

The Reist Roller Mill, at Williamsville, 4½ miles from Buffalo city line. Eighteen acres of land, with dwelling houses, twenty-two feet fall stone dam, Leffel Turbine water wheels, water the year round, steam power to assist in extreme dry seasons. Nine set 9x18 Stevens Rolls, two run of stone, three George T. Smith purifiers, grain-cleaners, scalping and bolting capacity for 80 to 100 barrels per twenty-four hours, etc., etc. Title perfect, bought at Sheriff's sale. Mill was mortgaged for \$18,000; will sell for \$5,500, without regard to loss, as I am no miller, but engaged in other business. The quick buyer will secure a great bargain. Address, WILLIS B. MUSSER, Lancaster, Pa., or my attorneys, BAKER, SCHWARTZ & DAKE, Esqs., Hayen Building, Buffalo, N. Y. 912

EVIDENTLY the United States courts are "not in it" with the patent claimants, who claim the earth and everything else that "rolls" in space.

THE flat, stale and unprofitable Milwaukee cognomen rejoices in its own peculiar position in an even more than usual maudlin style. It says it wishes it could employ Sam Seamans to write for it, because then, as it naively says, "most millers would be anxious to be regular subscribers" to the comical cognomen. Can it be possible that "most millers" are not at present "anxious to be regular subscribers" to that comical journal? It looks so. Meanwhile, it is a relief to know that Sam Seamans "never wrote a line to appear editorially in" the cognomen. We have defended Sam against so monstrous an accusation, and we are glad that our defense is justified by the confession of the cognomen. Sam should thank the Colonel for letting him out of the corner so easily.

QUERY 1: If "the tariff is a tax paid by the consumer," why on earth are the consumers in the United States congratulating themselves over the reformed tariff now in operation? Query 2: If the "tariff is a tax on the importer and not on the exporter," why in the name of quintessential lunacy are the exporters going on so like mad over the new United States tariff? Query 3: Are the consumers in the United States all "natural born fools," or are the exporting manufacturers of Europe all grown-up imbeciles, or are the free-traders, who make these irreconcilable assertions, pure and unadulterated liars?

INDIAN wheats have always been, and always will be, a nuisance in Great Britain. Aside from their thinness, riciness and general debility, they are nasty from the admixture of outside matter. A recent Liverpool, England, announcement is as follows: "Complaints are very general that the Kurrachee wheats this season are unusually full of dust, so full indeed as to render it impossible to use the grain in many cases. The dust is exceedingly fine and very obnoxious, the slightest movement of the wheat in bulk creating clouds of it. In the case of a large miller in Yorkshire, the dust caused by elevating the wheat from the vessel to the mill is declared to be a public nuisance, and the miller in question is unable to use these wheats any longer. The dust is evidently caused by the dirt in the wheat, and ordinary aspirating has hardly any effect upon it. As many millers may find themselves in the same position as this Yorkshire miller, it is to be hoped that shippers will endeavor to improve matters. Almost any impurity is capable of being extracted by an advanced miller, but in the case of this smoke-like dust, mechanical means seem powerless to combat it." This is some of the Indian wheat whose "redeeming qualities," when "understood," will "drive" American flour out of the British market after the aforesaid American flour has ceased to go to the aforesaid British market, and is all needed for home consumption! The stinking dust that rises from the Indian wheat is a mixture of all the foulness of a disintegrating race of paupers. It is made up of clay, sand, straw, awns, powdered camel's dung, and all sorts of unpleasant impurities absorbed from contact with filthy laborers, filthy animals and filthy storage. With such wheat to grind, it is small wonder that British mills are burdened with steamers, whizzers, cookers, washers and driers, and it is still smaller wonder that the flour made from it is what British science calls "a nondescript" mixture of wholly problematic quality.

### THE STRENGTH OF BOILER JOINTS.

Some discussion having arisen regarding the proper method of computing the strength of a triple-riveted butt-strap boiler joint in accordance with the Philadelphia rule, an example of such a calculation is here given. The Philadelphia law says that, in estimating the strength of the longitudinal riveted seams in boilers, the following two formulas shall be applied: Formula A. From the pitch of the rivets subtract the diameter of the holes punched to receive the rivets, and divide the remainder by the pitch of the rivets. The result is the percentage of the strength of the net section of the sheet at the seam, compared with the strength of the solid part of the same sheet. Formula B. Multiply the area of the hole filled by the rivet by the number of rows of rivets in the seam, and divide the product by the pitch of the rivets multiplied by the thickness of the sheet. The result is the percentage of the strength of the rivets in the seam, compared with the strength of the solid part of the sheet. It is to be assumed that the boiler will fail by fracturing the plates or by shearing the rivets, according as plates or rivets are the weaker; so that in finding the working pressure we take the lowest of the percentages as found by formulæ A and B, and apply that percentage as the "value of the seam" in the following formula: Formula C. Multiply the thickness of the boiler plate, expressed in parts of an inch, by the "value of the seam"

as obtained above, and again by the ultimate tensile strength of the metal in the plates. Divide the product by the internal radius of the boiler in inches and by the desired factor of safety. The result is the pressure per square inch at which the safety-valve may be set. The factor of safety is 5, or, under certain conditions specified in the statute, it may be as low as 4.

There is no difficulty in applying this rule to ordinary lap-seams riveted with one, two or three rows of rivets, all of equal pitch; but in the case of a joint such as is mentioned above, in which some of the rivets are exposed to double shear and others only to single shear, and in which some have a wider pitch than others, it has sometimes been asked what interpretation should be put upon the rule. The accompanying example shows what the proper interpretation should be, in my opinion. In the joint about to be considered the arrangement of the parts is as in the cut. The pitch in the double-riveted part is  $4\frac{1}{2}$  inches, the outer row of rivets being pitched 9 inches apart. The rivet holes are  $1\frac{1}{4}$  inches in diameter, the shell of the boiler is 60 inches in diameter, the rivets are of iron, and the shell-plates are of steel  $\frac{3}{4}$  inch thick, and having an ultimate tensile strength of 55,000 pounds per square inch. In order to get the relative area of section of the shell plates through the holes pitched 9 inches apart, we have in accordance with formula A:

$$A = \frac{9 - 1.25}{9} = .861$$

It is not necessary to calculate this percentage across the other lines of rivet holes, since the joint could not fail by simple fracture along one of these lines unless both the straps broke; and since the two straps taken together are considerably stronger than the solid plate, it follows that no danger need be apprehended from this source. The area of the  $1\frac{1}{4}$ -inch rivet hole being 1.227 square inches, formula B gives us, as the rivet section in the holes of a  $4\frac{1}{2}$ -inch section of the joint, the following:

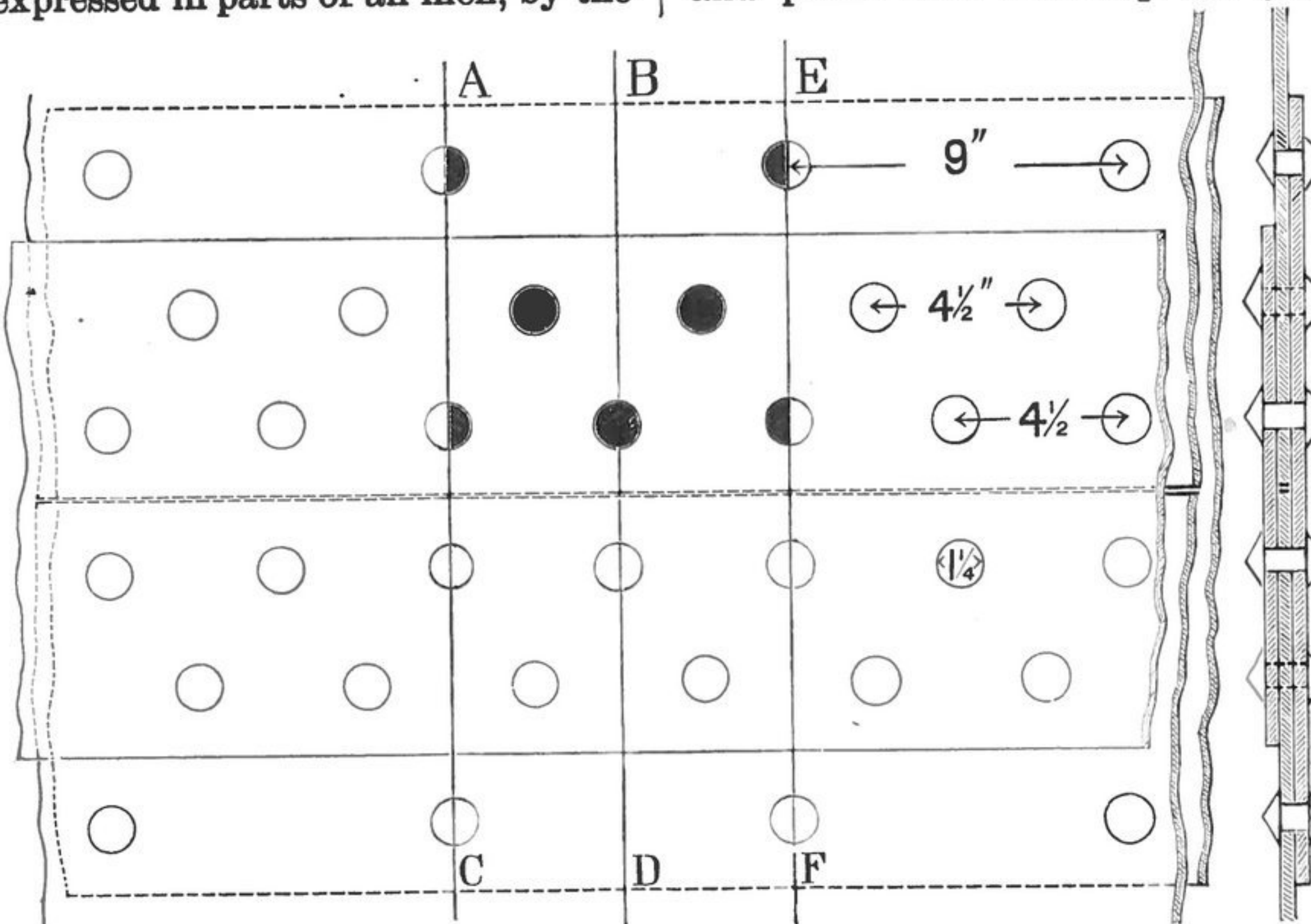
$$B = \frac{1.227 \times 4.5}{4.5 \times .75} = 1.636.$$

I have taken the number of rivet sections exposed to shear as representing the number of rows of rivets required by the formula. Two rows of rivets, each through three plates, that is, through two outside plates with boiler-shell-plate between them, will present 4 sections of the rivets to shear in one unit, A B C D, of the joint, and the single row through two plates at 9-inch pitch must be counted as a half a rivet. The result would be the same if we were to take a 9-inch unit of the joint, as A E C F, and then include the actual number of rivet sections exposed to shear within this limit; we should then have 9 sections of rivets within 9 lineal inches of the joint, which would give the same result by the formula as  $4\frac{1}{2}$  sections in  $4\frac{1}{2}$  lineal inches of the joint. Either case fills the intention of the City Rules.

We must next understand that formulæ A and B of the City Rules do not determine the strength of anything; but they do consider the sectional areas of the two components of the joint, which may be taken to stand for relative strength when all the materials of the joint are homogeneous, having shearing and tensional strength the same; and we are to note that formula C also supposes the shearing and tensile strength of the rivets and plates to be exactly the same when they have equal areas exposed to the same strain. Therefore, if we admit a difference in strength of the rivets and plates that make up the joint in question, we must

search for the exact figures of each before we can ascertain the true value of B.

We see by formula B that the rivet section is nearly double the plate section. Now we know that the City Rules do not provide for a composite joint, and therefore, as the steel plates of which this boiler is composed are known to be stronger than the iron rivets which hold them together, it is proper that the rivet section should be proportionately greater than the net section



A TRIPLE-RIVETED BUTT-STRAP JOINT.

of the perforated plates; but how much greater is a matter of many opinions and of diverse results of experiments. If we accept Chief Engineer Shock's experiments on bolts of iron subjected to single and double shear, we may take from his tables 40,700 pounds per square inch for single shear and 75,300 pounds per square inch for double shear, which numbers represent the shear, pure and simple, and do not include the uncertain element of friction. With these figures before us, which are among the lowest on record, we are prepared to find the true value of B, thus:

The double shear of two rivets, per sq. in., = 150,600 pounds.  
The single shear of a half rivet, per sq. in., = 20,350

The sum of which equals - - - 170,950 pounds.

Opposed to this is a corresponding section of the plate, in a unit of the joint, A B C D; 55,000 pounds per square inch, multiplied by  $4\frac{1}{2}$  inches, the length of this unit, equals 247,500 pounds. The two results just obtained must be placed in formula B in order to give the weaker material the proper additional area of section, thus:

$$B = \frac{1.227 \times 4.5 \times 170,950}{4.5 \times .75 \times 247,500} = 1.13$$

We see by this result that the effective rivet section is far beyond the requirement of the plates, and might safely be reduced. Proceeding now according to City Rule, we must take the least of the two results found by formulæ A and B and insert it in formula C, thus:

$$C = \frac{.75 \times .861 \times 55,000}{30 \times 5} = 237 \text{ pounds.}$$

The result may be accepted as the working pressure allowed

in this boiler; for it is in accordance with the spirit of the City Rule, although it embodies elements that do not lie within the limits of the ordinance.—*John H. Cooper, M. E., in "Locomotive."*

#### THE GRAIN TRADE OF BUFFALO.

The eastward movement of flour and grain from the West through Buffalo for the month of October, 1890, shows an increase of 299,206 barrels in the receipts of flour, and an increase of 360,454 bushels in the receipts of grain, estimating flour as wheat, compared with the same month last year. The following shows the imports of flour and grain into Buffalo, by lake, for the month of October, and from the opening of navigation to October 31st, 1890, compared with those for previous years:

FOR THE MONTH OF OCTOBER.			
	Flour, bbls.	Grain, bu.	Grain, Inc. Flour, bu.
1890.....	1,092,432	12,599,297	18,061,407
1889.....	793,226	13,934,823	17,700,953
1888.....	809,446	9,467,553	13,514,783
1887.....	501,442	11,435,146	13,942,356
1886.....	541,223	10,429,489	13,135,604
FROM OPENING TO OCTOBER 31.			
	Flour, bbls.	Grain, bu.	Grain, Inc. Flour, bu.
1890.....	4,831,543	77,072,003	101,229,718
1889.....	3,749,569	76,244,493	94,992,338
1888.....	4,111,694	64,688,587	85,247,057
1887.....	3,230,935	72,181,886	88,336,561
1886.....	3,657,726	63,856,658	82,245,288

#### POINTS IN MILLING.

"ALL is not gold that glitters," ran the old saw in the copy-books of our boyhood. The old saw might be newly toothed to read for the delectation and the edification of the miller: "All is not wheat that looks like it, even though it has a bran coat, a lot of awns, and a crease choke-full of the dirt which the theorists say exists only as wind." I saw a lot of wheat the other day that was wheat in everything but the reality. It lay in a heap, and it looked all right, but the miller who had bought it was objurgating it loudly when I called. He showed me some of the "stuff" it made when ground, and it looked like bleached soot and smelled like burned asafoetida. It was about the measliest looking and smelling mess that ever disturbed a miller's digestion.

"LOOK at that," said the miller, "what do you think of that?" I looked and thought, but preferred to answer his question by another one: "Are you grinding onions and garlies?"

THE angry man of buhrs and rolls laughed and said: "No, it isn't onions or garlies, but it's something a damsite worse. It's stinking smut. Just look at that grain in that pile. Heft it in your hand."

I OVERLOOKED the damsite, looked and "hefted" the grain, as directed, and found it very light, wonderfully light. On splitting open a grain and placing it under the glass, I could see that the shell was hollow, or partially filled with a peculiar, fusty, dark-tinted powder, with hardly a trace of flour. The smuts had done their work well. There was no flour available in that grain.

I ASKED the miller what he meant by buying such grain. He replied that he had "depended on the farmer's honesty," and had not examined the grain as he ought to do. He had thought the bags "were powerful light," but he was in a hurry, and dumped the grain, and paid the "honest farmer," and there was the result, a wagon load of wheat-grain shells partly filled with worse than worthless dust.

I HAVE seen many such cases, and in every case the miller had no one to blame for the bad bargain. The miller who buys wheat in a bag, and who does not carefully inspect the bags as they are dumped into his mill, deserves no pity when he finds that he has paid for a pig in a poke and got a skunk for his money. It is surprising that millers do not

more generally appreciate the value of inspecting supplies when they are delivered.

ONE-HUNDRED bushels of grain, costing \$100, will yield about 22 barrels of flour, providing the grain is uniformly good. If the "honest farmer" has contrived to work in 10 or 15 bags of "off" grain while dumping his load, the miller will find it hard to account for the fact that he has, after grinding, only 20 barrels, or less, of flour, where he should have had 22, or more, barrels. He will conclude, probably, that it is the fault of his machinery, and ten chances to one he will locate the blame on a roller-mill, or on a middlings-purifier, when he should locate it on himself.

THE man who in trade accepts a silver dollar or a golden eagle without ringing it to test its quality, deserves to find in his pocket a lead dollar or a brass eagle. The miller should test the \$1 or the \$2 bag of wheat just as surely and as carefully as he bites the silver dollar or inspects the \$2 bill handed to him. He is putting good money into the grain, so much money for so much wheat of a certain grade, and the only way for him to make things sure is to watch every weight and to examine every bit of grain dumped. In that way, and that way only, can he secure his weight and grade, and thus make sure that he will get his money out of that wheat again with the increase that belongs to him for the investment.

DO I SUSPECT the "honest farmer?" No, I suspect no one. Do I trust no one? Yes, I trust every one. But, suspecting no one and trusting every one but myself, I believe in looking purchases over carefully. Bags of various grades may get mixed after the bags are tied up. I have known such cases. Once I bought 100 bags of wheat from old Deacon Prairie. Following my invariable custom, I received those bags myself. Out of the lot just 80 were all right, 10 were slightly "off" and 10 were badly "off" in grade. The good old Deacon was very angry at his "careless" men, who "had got those bags mixed after they were tied up!" I kept the 80 good bags and paid for them, and the other 20 the Deacon toted back to his farm. The next day he brought the missing 20 good bags and got the balance of his money. Now, see: Had I not watched my receipts, I would have been deceived, cheated by the good Deacon's careless men, while in all probability those 20 bags of good wheat would have got into the bin of some miller who was buying and paying for "off" wheat. The Deacon was very grateful to me for showing him how "careless" his men might be, and I was very well satisfied that my own interests had been well served by watching out for "carelessness."

MANY millers have found similar cases. I believe everybody honest, of course, but it is certain that none of these "careless mistakes" ever happen to benefit the miller. The miller may receive some grain below the grade he is paying for, but he never will receive one grain of a grade higher than the one stipulated. It is this certainty that makes it imperatively necessary for the grain-buyer to know that he is getting just what he has bargained for.

THE evil effect of mixing poor wheat with good, even in small proportion, is great, positive and inevitable. Just so surely as throwing in some good grain will "help out" and lift up a grist of bad grain, just so surely will the injection of a quantity of poor grain pull down a grist of good grain. The 10 bushels of bad wheat will affect the 90 bushels of good in grinding in various ways, all bad.

WATCH your receipts, especially in a year like this, when the grade is running generally low in whole regions. Take no chances. Everybody is honest, but even the most honest man in the world can not always avoid "careless" mistakes. Open every bag. Whenever a bad one comes, kick. Throw it aside. In this way you'll get what you pay for, and the seller will get all that really belongs to him out of the transaction.

**SCOTTISH CAKE LORE.**

Cakes in Scotland must always be laid on the trencher right side uppermost. To serve them the other way was formerly deemed nothing less than an insult. The origin of this curious notion appears to be the tradition that only to the traitor who gave Wallace up to the English, and to his descendants, were cakes served up in this manner. Hence the proverb. "Turn the bannock with a fause Menteith." Before the new year a grand baking took place in Scotch households, and the gude-wives with their bonnie lasses were busy concocting "soft cakes" and "bannock." Besides these, a cake was baked for each member of the family and from its behavior during the cooking process omens were drawn. If the cake broke, the person for whom it was intended would die during the ensuing year; if only a small piece broke off, he would have an illness. An unwritten law forbade the counting of the cakes, a law that must have singularly favored the depredations of lawless and hungry bairns. Anyhow, "There was nae thrift in coontit cakes, as the fairies ate the half o' them." Happy children, with fairies for scapegoats! A baby beginning his dentition troubles was immediately treated to a teething bannock, which was supposed to act as a charm and to relieve the pain. The bannock was made in perfect silence and given to the child to play with. When broken, the neighbors who had assisted at the ceremony carried each a small portion away with them, and a bit was put in the baby's mouth, which completed the charm.

**MILLING PATENTS.**

Among the patents granted October 28th, 1890, are the following:

The American Hominy Flake Co., Yellow Springs, O., registered trade-mark No. 18,573, the words "Snow Flake."

John H. Forsyth, Fargo, N. D., No. 439,135, automatic grain-scales, comprising an oscillating weighing-box suspended from a scale-beam and provided with oppositely-arranged compartments intended to alternately receive and discharge the grain and also provided with a projecting arm, said arm having two rollers pivoted thereto, one above the other, in a line from the oscillating center of the box, in combination with a track on the frame to deflect the lower roller and covering the entire travel of same, and gravity-pawls on the hanger-arms to engage the top roller.

Peter Provost, Minneapolis, Minn., No. 439,555, a grain-scourer, comprising the combination, with outer casing, of a hopper-shaped screen having a cylindrical projection, a second hopper-shaped screen, revolving disk in the second screen, and having its upper surface covered with wire-netting, and a screen above the disk and between the outer casing and cylindrical projection.

Frederick W. Howell, Buffalo, N. Y., No. 439,596, a roller mill, assigned to Margaret T. Howell, same place.

**BRITISH IDEAS OF FOREIGN FLOURS.**

American flour-makers will be interested in the following views of American and Hungarian flours, advanced by two British millers or bakers, in the London "Miller," in answer to questions presented at the April session of the City and Guilds of London Institute, when a technological examination in bread-making was held. One of the questions was the following: "What are the leading baking characteristics of the following varieties of flour: Spring American Bakers, 'Winter American Bakers,' Hungarian, and Californian flours?"

The answer given by a "Medalist" is as follows: In giving the leading characteristics of the following flours, I shall assume that I am dealing with an average sample of an average harvest year, because in different years two flours bearing the same names and coming from the same countries may vary considerably. Take, for instance, the Hungarian flours of this year, which have very little likeness to those of former years from the same mills.

**SPRING AMERICAN BAKERS.**—This flour would generally be described as being very strong, but harsh; it contains an

enormous percentage of gluten, but the quality of the latter is not the best. We therefore do not get the texture in the loaf that we might otherwise expect from a flour containing so much of this important ingredient; its water-absorbing power is good, but color and flavor inferior. It therefore is a useful flour for a low-class trade, where cheapness and quantity are required at the expense of one's palate; in spite of the texture being irregular the loaf is certainly bold, but usually has a very red and uninviting crust, and is very dry eating, especially when a day old. This flour is suitable for a long sponge.

**WINTER AMERICAN BAKERS.**—This is a very different flour to the foregoing and would be generally described as a weak and moist flour. It can not altogether be styled a flour of good flavor, although the latter is passable, and might be classed with medium quality English flours. Its weakness is due to its lack of gluten, and for a similar reason its water-absorbing power is small; although it absorbs little it retains a large percentage, on account of the loaf being usually very small when unwisely made from this alone; the foxiness noticable in the corresponding grade of the spring flours is absent in the winter. It is not suitable for long fermentation, therefore should be used at the "doughing" stage.

**HUNGARIAN.**—There are, of course, several grades of this flour, as of any other, but we are not asked to classify any particular grade, so, speaking generally, I should describe Hungarian flour as being of good flavor, color and general quality, but not particularly strong. The very high-priced grades seem to contain all that can be desired, color, strength, flavor and everything; but the lower grades are sometimes weak and liable to produce cold and clammy bread. The gluten is of somewhat low percentage, but of good quality and elasticity; water-absorbing power good; gives nice bloomy crust, as well as a white and moist crumb. It is not so much a bread-making as a confectionery flour, as it produces a light and high paste, but if used for bread should usually be reserved until the doughing stage.

**CALIFORNIAN FLOURS.**—These flours are usually weak, but dry; their gluten is either very deficient, or else more soluble or less adhesive than that of most flours, because it is very hard to obtain a good percentage from them when testing for gluten by the ordinary process of washing in a piece of silk. Flavor and color good.

Another writer, "Excelsior," gives the following answer: The difficulty about this question is to know exactly how the terms here stated are defined as applied to the several grades of flour. Terms and brands have usually a local meaning and have quite a different significance in different localities. Thus what in one place is sold as a "straight" flour is in another sold as "bakers'" (why thus distinguished is hard to know). The same flour again is sometimes sold as a second patent. But straight and second patent do not always mean the same thing as bakers'; hence a confusion of terms. If by "bakers'" here is understood a second patent, then spring American bakers' is a strong, but somewhat harsh flour. The bread yield from it is generally as good and often better than the patent of the same wheat. It is rich in gluten and stands well in dough. The bread from it is bulky enough, but wanting in texture and color. It makes a rough and rank tasting loaf; it is best used in sponge stage, and will stand being well wrought. Winter American bakers' is generally a stronger flour than the patent from the same wheat. Although best used at the dough stage, it suits better than the patent for sponging purposes, but when so used it is best mixed with some stronger harder flours. Sponges in which any quantity of winter bakers' is used ought to be made somewhat stiffer, and they must not be over-wrought. These flours have only a very moderate yield, the dough is sodden and inelastic, and unless made stiff, they tend to cling and appear flat. The bread is of poor bulk and of a grayish color, even though the flour may appear very white. Hungarian flours are used principally on account of their flavor and color. They bake well, give the crust a good bloom and make the crumb of the rich yellowish white so much ad-

mired by bakers. These flours are not as rich in gluten as the spring American patents, but their gluten seems to be of special quality. They absorb a large quantity of water and consequently have a good bread yield. They require a dough a little stiffer than American patents, but the loaf produced has better flavor, finer texture and superior color. Some of the best brands of Californian flours are almost perfection in the matter of color. These flours are best used wholly at the dough stage; they stand well in dough and make a loaf of good, even texture.

CANADIAN tactics to induce immigration into Canada are outlined in the following quotations from the London, England, "Miller" of October 6th: "It is reported that agents of the Canadian Agricultural Department, who have been investigating the condition of the settlers in Dakota, describe the situation there as very serious. It is stated that in South Dakota, where the drought has been most persistent, the wheat crop does not average more than five bushels an acre." Our cotemporary should mention the fact that South Dakota has yielded a crop of about 18,000,000 bushels of wheat, despite the exceedingly unfavorable season, while Manitoba, in whose interest the misrepresentations by the Canadian agents are made, is boasting of 12,000,000 to 15,000,000 bushels of wheat of low grade. It may seem profitable for the Canadians to misrepresent affairs in both Canada and the United States to intending emigrants, but the recent past proves that it is unprofitable. A great many farmers have, beyond doubt, been induced to go to Manitoba by the gross exaggerations of immigration agents, but many of them have promptly pulled up stakes and come into the United States when the mournful facts in the Manitoban situation became known to them. Our neighbors have yet to learn that "corruption wins not more than honesty," even in immigration matters. The real truth about Manitoba is the trump card to play. The little joker of misrepresentation never fails to upset the game.

If the "Yahoo" is so indignant over the assertion that it is paid by the National, what ought to be the state of mind of the members of the National, who are by implication accused of paying the "Yahoo" for its support? No prize offered for the best answer to this query.

The Century magazine celebrates its twentieth anniversary with the November number, a number which is intended to exemplify the best that an illustrated magazine of our day can do for its innumerable readers. In the editorial on the event the editor claims for *The Century* "a sane and earnest Americanism," an Americanism "that deems the best of the Old World none too good for the New." There is a variety in the illustration of the November number which is remarkable even for *The Century*, varying from the actinic reproduction of rapid pen work to the exquisite engraving of Cole in the "Old Master" series, a full-page after Signorelli. The great feature of *The Century's* new year, the series on the Gold Hunters, is begun with John Bidwell's paper, fully and curiously illustrated, on "The First Emigrant Train to California." Another important series of papers herein begun is Mr. Rockhill's illustrated account of his journey through an unknown part of Tibet, the strange land of the Lamas. A notable and timely contribution to Dr. Shaw's series on municipal government is his interesting and thorough account of the government of London, with its warning for American municipalities.

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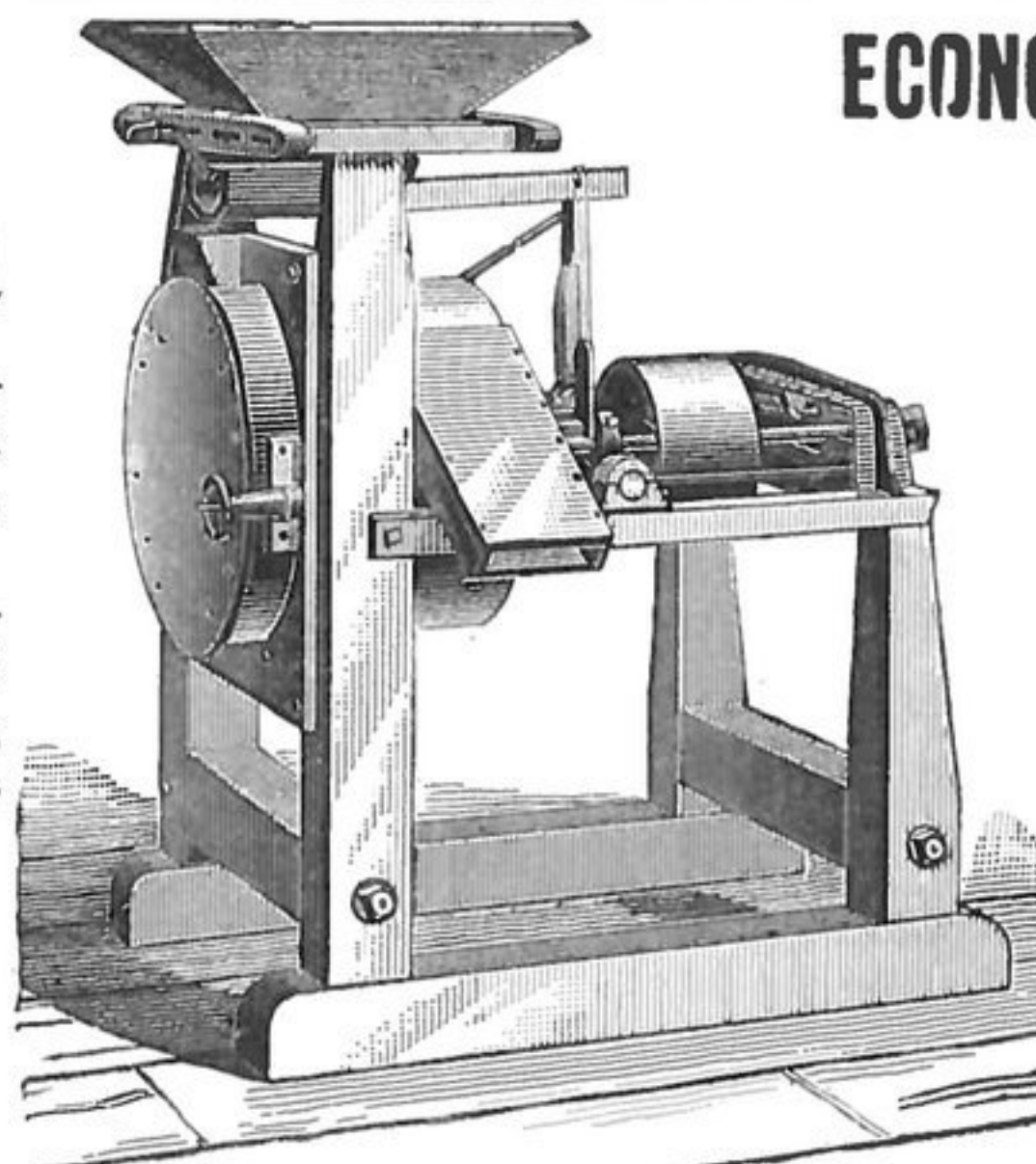
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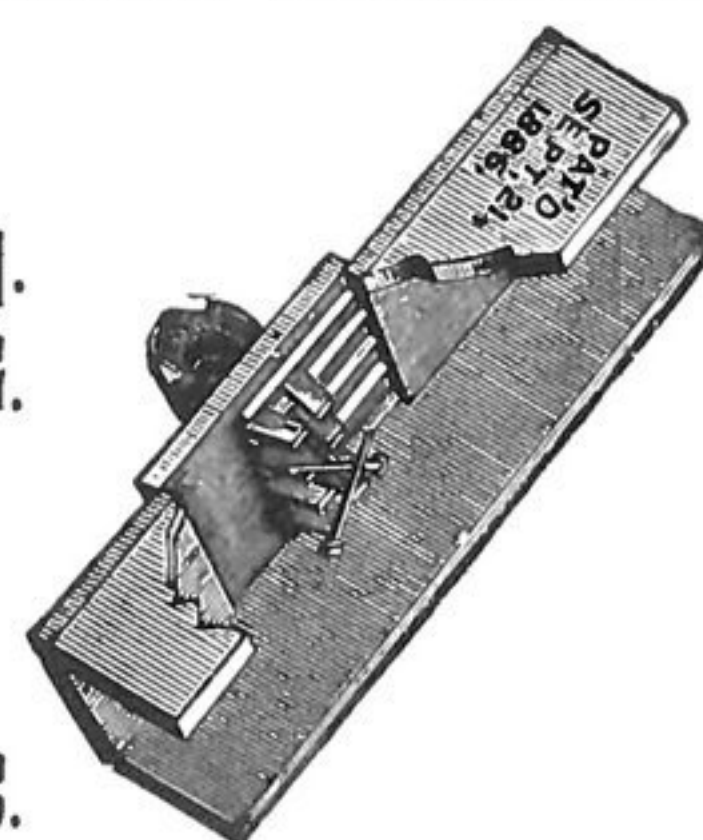
Grinding surfaces are of Old Stock French Buhr Stones. Grinds Graham flour and Bolted Meal as well as all kinds of feed.

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A pictorial series begins in this number, "Pictures by American Artists," the example given being Will H. Low's "The Portrait." The first of two articles on the naval fights of the war of 1812 appears in this number. The fiction of the number has as its most striking contribution the beginning of the first long story written by the artist-author, F. Hopkinson Smith; it is entitled "Colonel Carter of Cartersville." Mrs. Anna Eichberg King has a story of old New York, and Frank Pope Humphrey has a ghost story entitled "The Courageous Action of Lucia Richmond." The frontispiece is an engraving of a photograph of Lincoln and his son "Tad," accompanied by an article by Col. John Hay on "Life in the White House in the time of Lincoln." In the prison series is a paper descriptive of adventures "On the Andersonville Circuit." W. C. Brownell makes note of the work of two original French sculptors, Rodin and Dallou. The poetry of the number is by Edgar Fawcett, the late James T. McKay, a posthumous poem entitled "The Epitaph," James Whitcomb Riley, G. P. Lathrop, R. W. Gilder, Thomas A. Janvier, John Vance Cheney and Arlo Bates, besides a full Bric-a-brac department of lighter verse. The Editorial Department discusses forestry, international copyright, etc., and W. W. Ellsworth protests in Open Letters against "The Spoiling of the Egyptians."

E. N. Offutt & Co., Georgetown, Ky., will build a 75,000-bushel grain-elevator.

S. C. Hunt & Son, Lynchburg, Va., will build a grain-elevator at their flouring-mill.

### CATARRH.

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A NEW HOME TREATMENT.

Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result of this discovery is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks.

N. B.—This treatment is not a snuff or an ointment; both have been discarded by reputable physicians as injurious. A pamphlet explaining this new treatment is sent free on receipt of stamp to pay postage, by A. H. Dixon & Son, 337 and 339 West King street, Toronto, Canada.—*Christian Advocate*.

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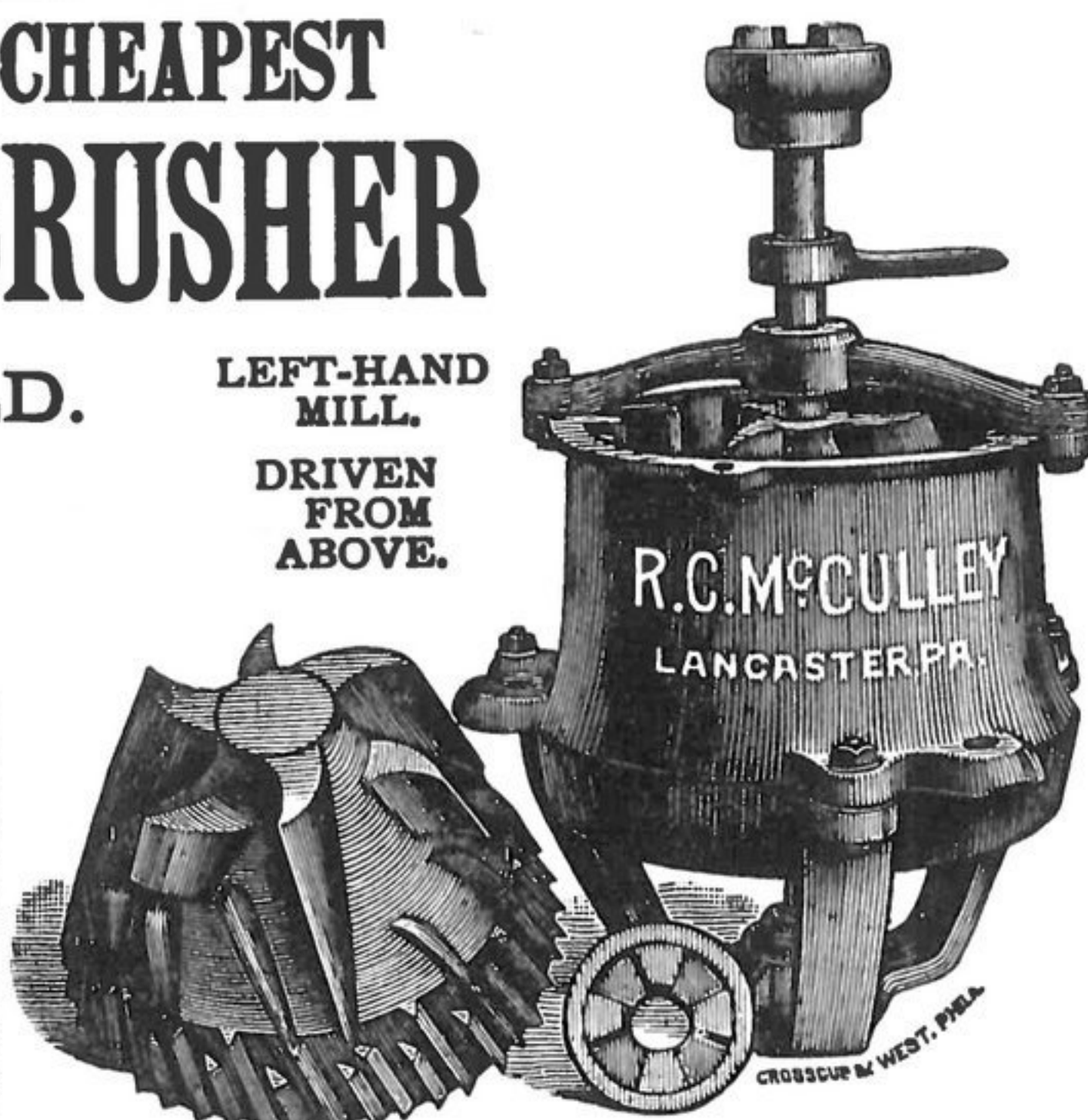
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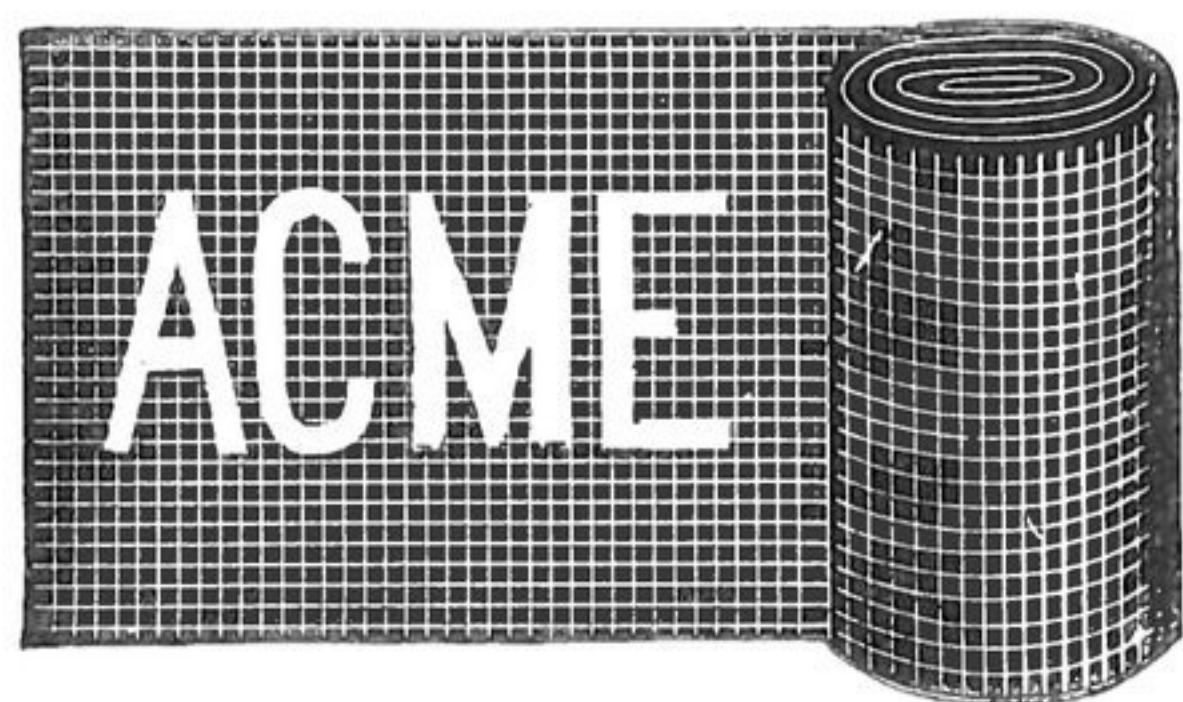
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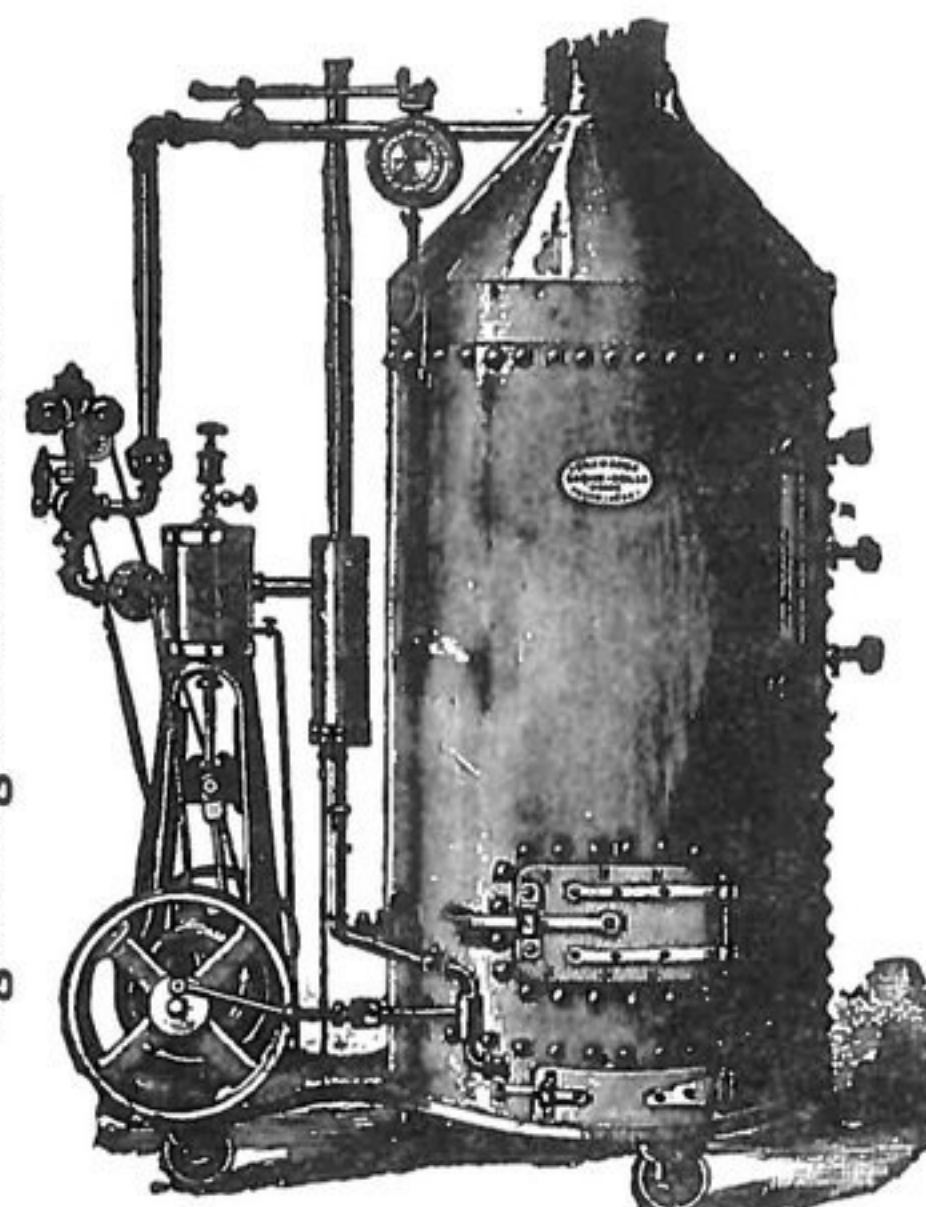
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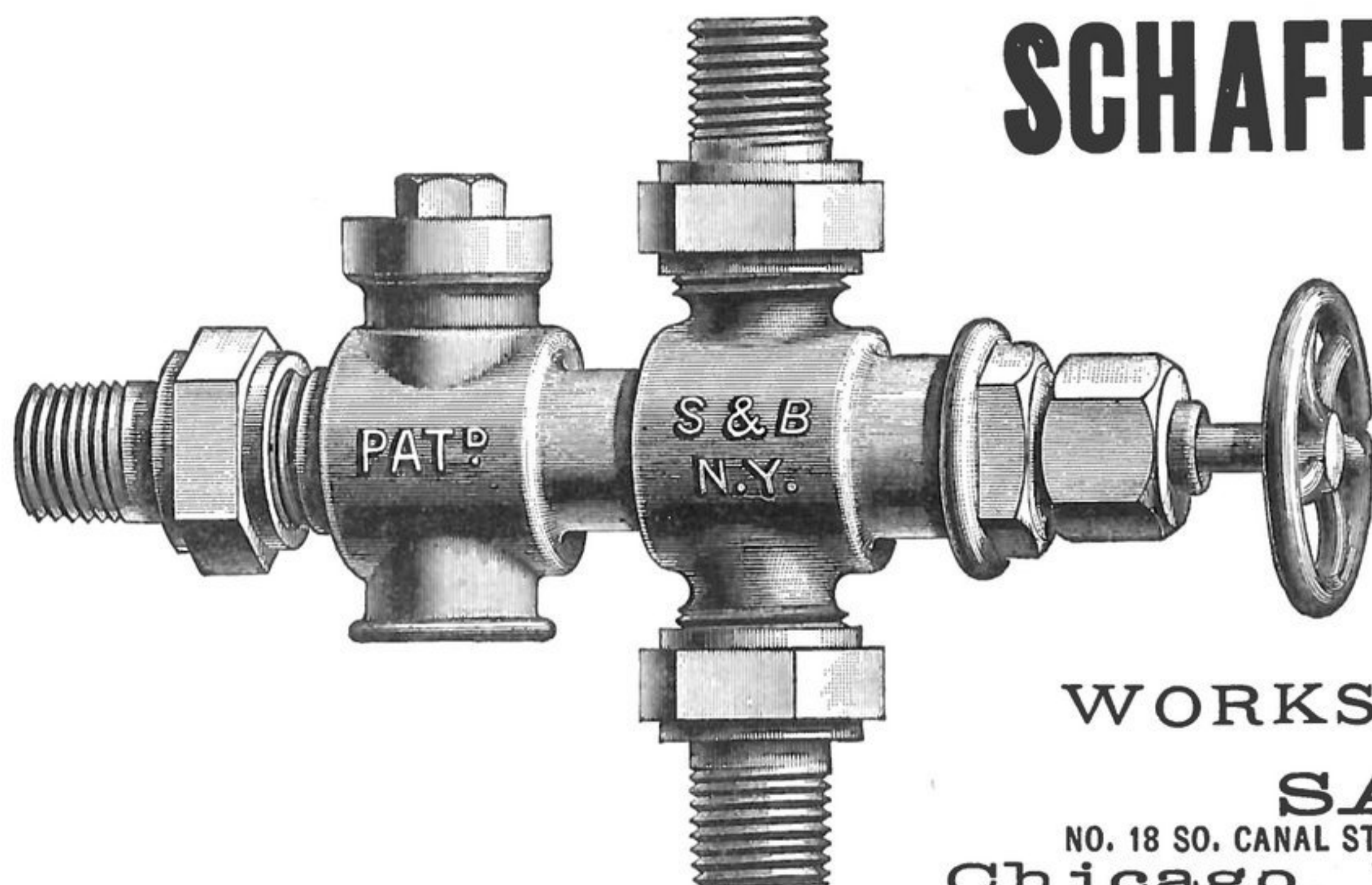
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New York.



Wm. Knapp, miller, Blanco, Tex., is dead.  
 Koons Bros., millers, Fremont, O., sold out.  
 R. E. Halle, Callaway's, Va., builds a roller mill.  
 G. W. Hodges, Asheville, Ala., improves grist-mill.  
 Rosamond & Sons, Weldon, Tex., build a grist-mill.  
 A. Johnson & Co.'s grist-mill, Sardis, Miss., burned.  
 Mr. Lampton, Ashland, Ky., builds a feed and corn mill.  
 T. W. Telford, Blanchard Springs, Ark., built a grist-mill.  
 S. J. Noble, of Noble & Cons, millers, Williamsport, Pa., is dead.  
 Kaull & Nash, millers, Glen Elder, Kan., are succeeded by F. M. Kaull.  
 E. N. Offutt & Co., Georgetown, Ky., will build a grain-elevator; they want machinery.  
 T. B. Summers, Sharpesburg, Me., will build a roller flour-mill at Wilkesboro, Me.  
 J. H. Walker & Co., Reidsville, N. C., are rebuilding their recently burned grist-mill.  
 The Page Flouring Mills Co., Incorporated, Fergus Falls, Minn., closed on executions.  
 P. C. Keith's flouring-mill, Keith's, O., burned; loss \$3,500; no insurance; fire incendiary.  
 J. M. Harris and others, Blackstone, Va., will build a flouring-mill; machinery is wanted.  
 Corydon, Ky., men have incorporated the Anchor Roller Mills, capital stock \$50,000, to build a mill.  
 Chas. Kuhlmann, Saltpeter, O., is putting in rolls furnished by The Case Mfg. Co., Columbus, O.  
 The Eureka Lumber Co., Gibsonville, N. C., will build a flour and corn-mill; machinery is wanted.  
 Witz & Holt, Staunton, Va., have bought a site and will build a roller flour-mill. They want machinery.  
 The Southern Millers' Association will hold a convention in Evansville, Ind., on the 16th of December next.  
 S. C. Hunt & Son, Lynchburg, Va., will build a 100,000-bushel grain-elevator and a 1,000-bushel corn-meal mill.  
 Brown & Biddle, Laysburgh, Pa., are building a roller flour-mill of 125-barrel capacity at Johnson City, Tenn.  
 Williams & Son, Petersburg, Va., have placed an order with The Case Mfg. Co., Columbus, O., for 4 pairs of rolls.  
 The Northern Pacific wheat elevator at Eureka Junction, Wash., burned; loss \$11,000; fully insured; fired by tramps.  
 The Case Mfg. Co., Columbus, O., have an order for 12 pairs of rolls from the Baltimore Pearl Hominy Co., Baltimore, Md.  
 The next convention of the Northern Indiana Millers' Association will be held in Fort Wayne, Ind., on the 18th of November.  
 James Woodside, Millers Station, Pa., has placed his order with The Case Mfg. Co., Columbus, O., for rolls, purifiers and other supplies.  
 G. D. Rand and others, Richmond, Va., incorporated the Southern Flour Co., capital stock \$100,000, to build and operate a flouring-mill.  
 Daniels & Inskeep, Moorfield, W. Va., have placed their order for all the necessary rolls, scalpers, flour-dressers, centrifugals, purifiers and other machinery for a full roller mill on the Case system with the Case Mfg. Co., Columbus, O.  
 The Case Mfg. Co., Columbus, O., have received the contract of Jas. F. Anderson, Milford, Del., for all the necessary rolls, scalpers, flour-dressers, centrifugal reels, purifiers and other machinery and supplies for a full roller mill on the Case system.

T. Yager, flour-mill, near Piqua, O., is succeeded by T. Yager & Co.  
 H. B. Lyon and others, Eddyville, Ky., have formed a stock company to build a 75-barrel flour-mill. A corn-mill will be added to the plant.  
 The Case Mfg. Co., Columbus, O., have an order from McKenzie & Winslow, Fall River, Mass., for a No. 1 corn-meal aspirator and purifier.  
 Jacob Hornbeck, Montague, Sussex county, N. J., has resumed the management of his grist-mill, which has been for several years operated by L. A. Marthis.

J. J. Triplet, Mt. Jackson, Va., and others have incorporated at Staunton the Staunton Steam Roller Mill Co., capital stock \$30,000 to \$50,000, to build a 250-barrel flour-mill.

The Case Mfg. Co., Columbus, O., have received the contract of Huffman Bros., Greenford, O., for a full line of Case rolls, scalpers, flour-dressers and other machinery for a full roller mill on the Case system.

The Case Mfg. Co., Columbus, O., have received the contract of S. S. Wood & Co., Venice Center, N. Y., for a full line of Case rolls, scalpers, flour-dressers, centrifugal reels, purifiers, bran-dusters, cleaning machinery and supplies for a full roller mill on the Case system.

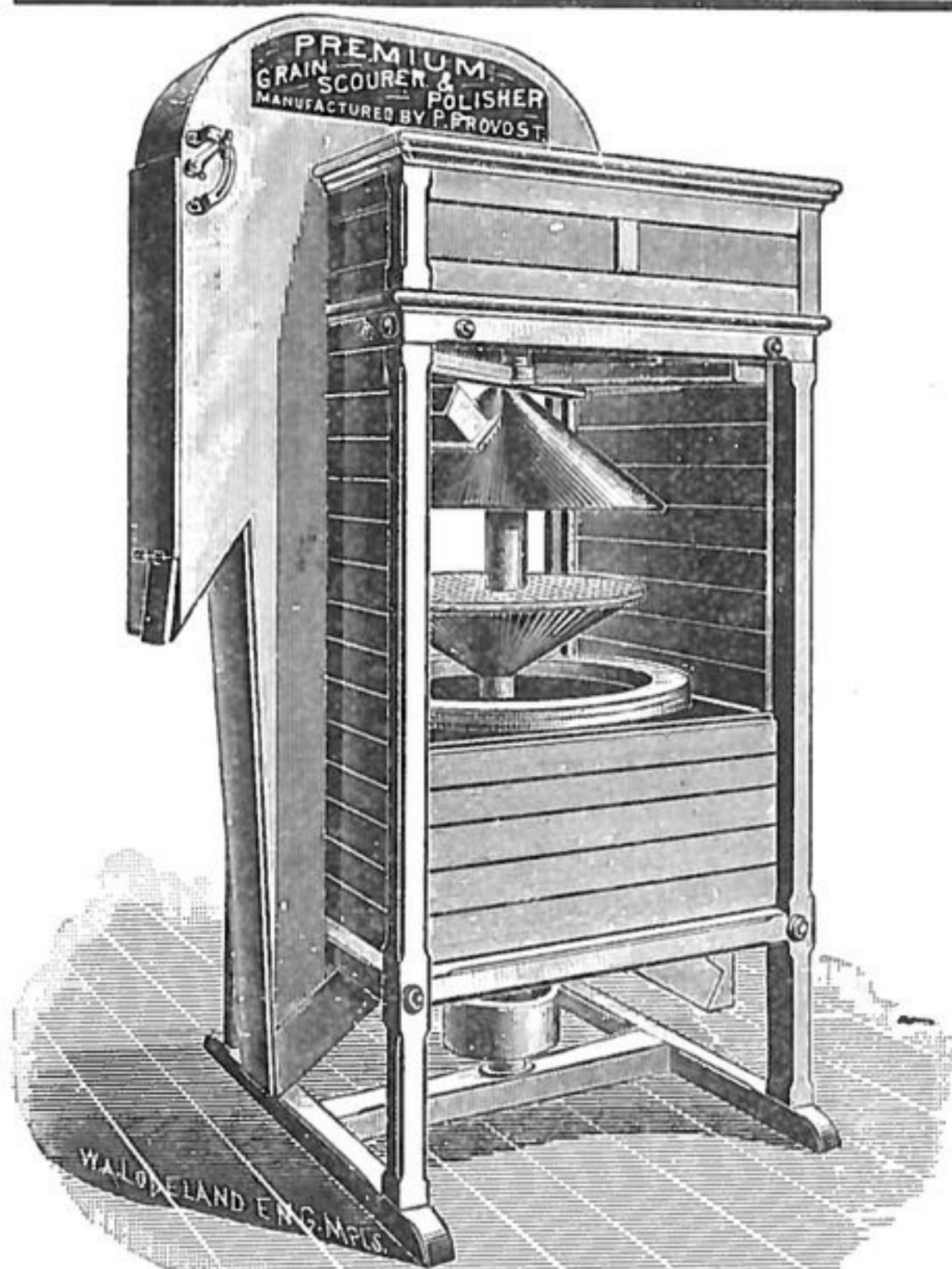
J. R. Wingfield and others, Rio, Va., organize the Rio Milling & Mfg. Co., capital stock \$15,000, to run the Rio Mills, which they have bought for \$6,500; they remodel it to rolls and enlarge capacity; machinery is wanted.

Wm. Cameron, of Fort Worth, Tex., has offered his 800-barrel New Erie Mills in Fort Worth, Tex., his 480-barrel Cameron Roller Mills in Waco, Tex., the 1,000-barrel Todd Milling Co. mill in Dallas, Tex., and other property in Texas and Louisiana to an English syndicate for \$2,000,000. The option is pending.

#### BOOKS AND PAMPHLETS.

THE QUEEN PAYS ALL EXPENSES.—*The Queen's* last "Free Trip to Europe" having excited such universal interest, the publishers of that popular magazine offer another and \$200 for expenses to the person sending them the largest list of English words constructed from letters contained in the three words "British North America." Additional prizes consisting of Silver Tea Sets, China Dinner Sets, Gold Watches, French Music Boxes, Portiere Curtains, Silk Dresses, Mantel Clocks, and many other useful and valuable articles will also be awarded in order of merit. A special prize of a Seal Skin Jacket to the lady, and a handsome Shetland Pony to girl or boy (delivered free in Canada or United States) sending the largest lists. Every one sending a list of not less than twenty words will receive a present. Send six U. S. 2c. stamps for complete rules, illustrated catalogue of prizes, and sample number of *The Queen*. Address The Canadian Queen, Toronto, Canada.

The November number of *Scribner's Magazine* is a peculiarly rich, varied and entertaining one, as may be seen in the following list of contents: "Signaling to Moorings." Frontispiece. Drawn by R. F. Zogbaum; engraved by Witte. "The Tale of a Tusk of Ivory." By Herbert Ward. Illustrations by Frederic Villiers; engraving by Kruell and C. W. Chadwick. "Cardinal Newman."—Two sonnets. I. By Aubrey de Vere. II. By Inigo Deane. "Dr. Materialism." By F. J. Stimson. "Life and Nature." By Archibald Lampman. "A Day with a Country Doctor." By Frank French. Illustrations drawn and engraved by the author. "Jerry"—Part second, Chapters XIII.-XVIII. (Begun in June—to be continued through the year.) "Through the Grand Canon of the Colorado." By Robert Brewster Stanton. Illustrations from photographs by the author, and by F. A. Nims, and from drawings by V. Perard, M. J. Burns, and W. C. Fittler; engraving by John P. Davis, Van Ness, Heard, Schussler and Dana. "The Training of a Nurse." By Mrs. Frederick Rhinelander Jones. "With Yankee Cruisers in French Harbors." By Rufus Fairchild Zogbaum. [The concluding article on the recent cruise of the "White Squadron."] Illustrations by the author; engraving by Atwood, Klotz, and Heard. "In Broceliande." "Nature and Man in America"—third (concluding) paper. By N. S. Shaler. "Fugitives." By Graham R. Tomson. "The Point of View"—The Memory of the War—Mechanical Criticism—The Spartan Virtue.



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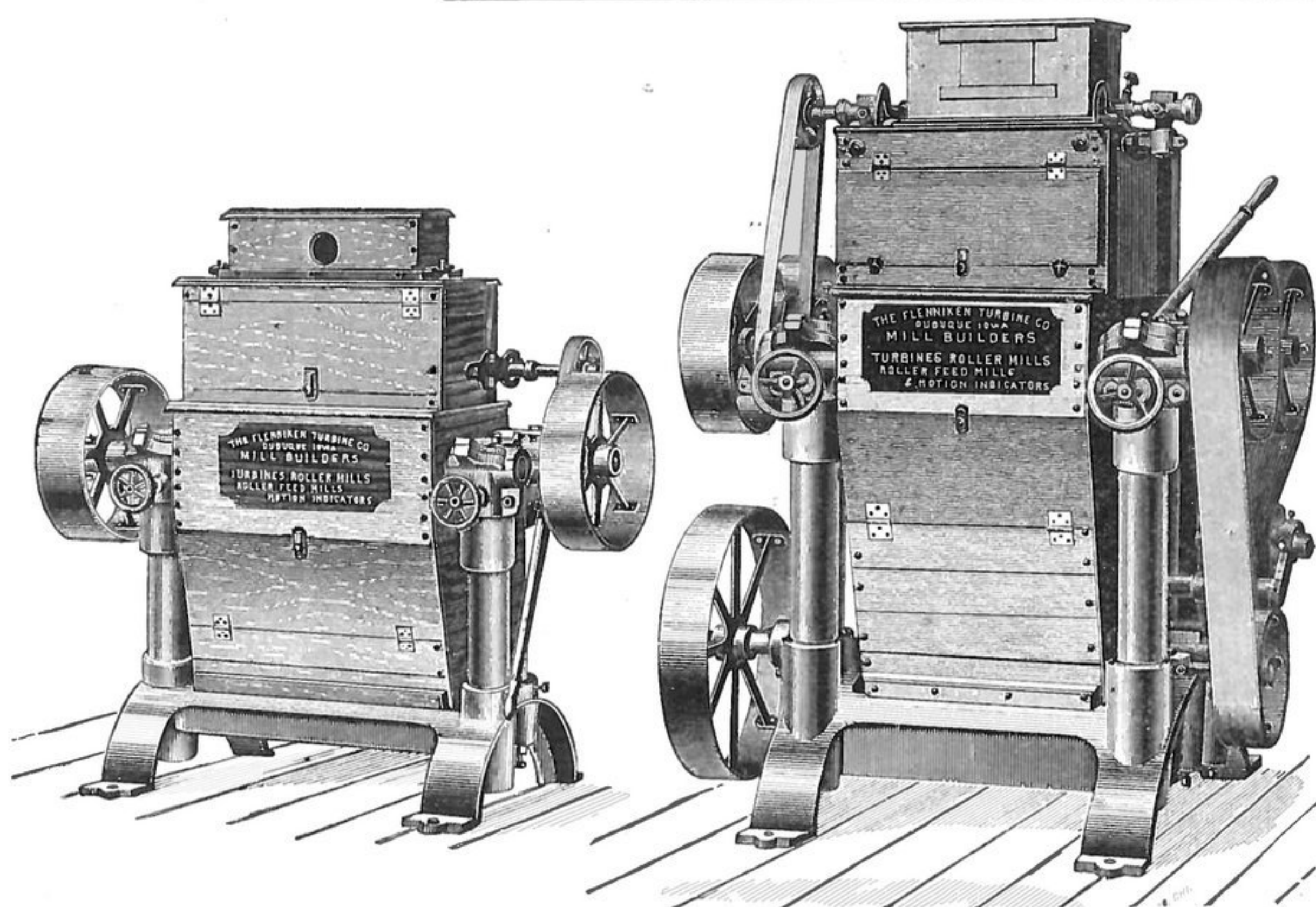
MINNEAPOLIS, MINN.

# ONE REDUCTION TO THE FRONT!

*Ye jolly millers, one and all,  
Who granulate with burrs,*

A Moses has Come to Deliver You from Egypt. Cease  
Trying to Make Bricks without Straw. The Red  
Sea of Expense Has Been Divided.

**The Wilderness of Reductions has Been Shortened. There  
is Manna in Abundance for Those Who Believe.  
Listen to the Glad Tidings of Great Jov!**



**ONE REDUCTION ON ROLLS IS  
A SUCCESS!** Two years of experience in a dozen States, with all kinds of Wheat and diversified climates, has justified us in recommending its adoption in place of burrs in each and every case, whether for grinding Wheat, Rye or Buckwheat. We have perfected Roller Mills, Bolts and Scalpers peculiarly adapted to the wants of Small Mills, and all our machines *infringe no patents*, and no claims are made that they do.

Having consummated a bargain with **MR. O. C. RITTER**, the author and patentee of **One Reduction**, which gives us the *exclusive right* to construct mills under his patents, our patrons in the future will receive a license from Mr. Ritter.

**SPECIALTIES!** { Graham Roller Mills, Round Reels and Scalpers, Sectional Round Reels, Grain Separators, Motion Indicators. Before buying any of these machines send for our prices and descriptive circulars. } **SPECIALTIES!**  
**Second-Hand Machinery, and Bargains in Every Line.**

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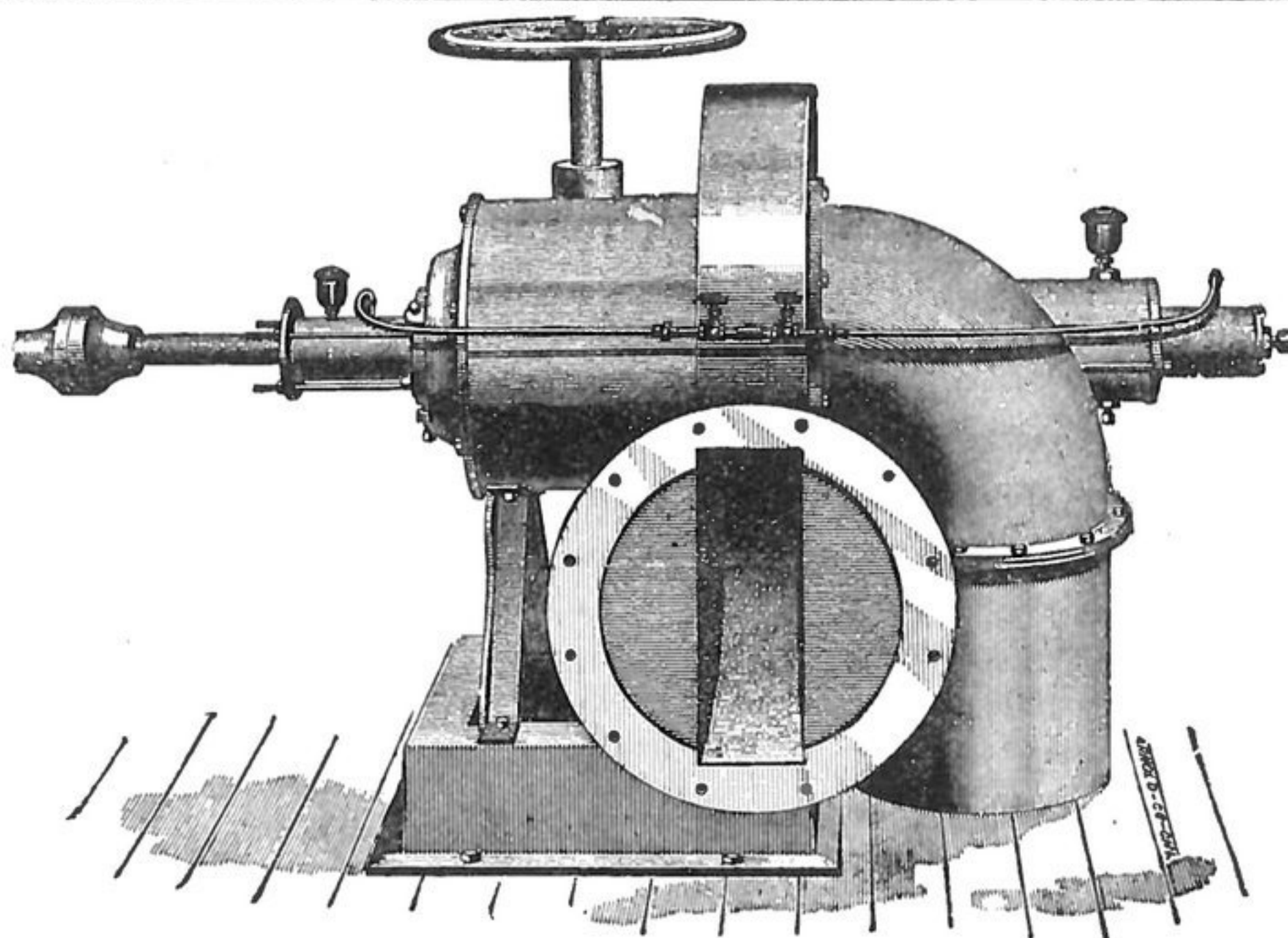
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## EUROPEAN ECHOES.

THE new tariff proposed in France levies a duty of \$1 on 220 pounds of wheat, \$1.60 on 220 pounds of wheat flour, 60 cents on 220 pounds of corn and \$1 on 220 pounds of corn-meal.

APPARENTLY, nobody in France places much reliance on the exaggerated wheat crop estimate made by the government. One Paris correspondent says that the French official computations of their crop are erroneous, that French millers find difficulty in getting good wheat, and that France will have barely enough wheat to tide them over to next crop.

THE Director of Agriculture for Bengal reports that the winter crops have been damaged by floods in portions of the district of Sarum, Nuddea, Mozufferpore, Patna, Monghyr, Jessore and Furreedpore, and only half an average crop is expected in the worst affected tracts. Prospects are favorable throughout the greater parts of the Province, but it is impossible to speak with certainty before the end of October. The crops in a portion of the Ganjam district are in a backward condition. The authorities are carefully watching, and nothing approaching famine is apprehended.

WRITING to the editor of the London, England, "Millers' Gazette," under date of October 10th, Mr. Bryan Corcoran, of London, says: "I notice from your report that it was suggested in Council to elect a technical committee to advise members respecting new machinery and processes, and I venture to think that this would be an unwise step. Is the committee going to look after the miller who does not know his business? Is the committee to judge and decide what is a good and what is a bad machine? And is the Association (the National Association of British and Irish Millers) going to risk litigation when its advice has caused an injury to either side? What is the value of any advice to an unpractical man? Is not advice to the most appreciative only a help to forming his opinion, and what is the value of any one's opinion who does not know the circumstances of the case? Do not all men differ very much, and does not success in any undertaking depend mainly on their personal equation? Are there not some who do not learn wisdom even from experience, and others who expect to hit the bull's-eye before knowing where the target is? Supposing a technical committee be appointed, might not its worthy members be persuaded by the clever travelers, and so become advocates for special machines, or is there no danger, on the other hand, of arriving at the happy state of knowing everything? I think it would be wrong to expose any one to these dangers. If a man wants to make money by his business, let him study to understand it; and if he is in earnest, he will join the Association and find advice one of the cheapest commodities. Nor could any one carrying on business as a miller well refuse to subscribe when he realizes the claim the trade has upon his help. I believe the Association has only to hold frequent meetings to find plenty of legitimate work to be a benefit to the trade."

FOR some time considerable damage has been reported in flour-stores, says the "Journal de la Meunerie Francaise," caused by the larva of the "Ephestia Kuhnella," an insect of the lepidoptera family, which seems to have been imported into Europe with American flours. Like all the lepidoptera, this insect passes through three stages: First in the larva state, next it changes into chrysalis, and then becomes a moth. This is a description of it: The larva is of a rose-white color, and on each ring of the body has two black points symmetrically placed. The chrysalis is of a fawn color, and is surrounded by a covering of white silk. The moth has a black head, the thorax gray and black, the abdomen grayish, the wings gray and pointed and with white spots, and fringed with black on the back edge. The lower wings are of a dirty white. It is from 12 to 14 millimeters in length. The presence of the parasite is recognized in the numerous webs with which it surrounds itself, and which webs trans-

form the flour sacks into a kind of reticulated magna, from which it is impossible to extract the flour. When this parasite is in a mill, it quickly takes possession of the places in which the flour is kept. How can it be destroyed? There is a method indicated by one of the collaborators of the "Annales Agronomiques," which consists in causing asphyxiation of the parasite by the aid of oxide of carbon. "In the first place," say the author of the method, "I close the flour room completely by pasting paper on all the fissures and joints. Then I had fitted exteriorly to one of the partitions a small iron stove with two tubes, one at the top running to the top part furthest from the chamber, and the other at the base, terminating under the fire-box and coming from the nearest room. The tube being perfectly luted with clay, the stove is charged with about 10 liters of well-kindled embers, then the stove is closed with its covering, also luted with clay, so that combustion takes place exclusively at the expense of the oxygen of the chamber. The coal is then allowed to burn until it is extinguished without, of course, recharging the stove, and it is left for 24 hours. At the end of this time the chamber is opened, with the necessary precautions, and moths and chrysalides are found to be asphyxiated. Sometimes it happens that all the oxygen of the chamber is not taken, and some of the moths resist feebly, but then it is not difficult to take them, for the instinct of preservation attracts them all into the corner of the chamber where the air is least vitiated, and there it suffices to collect and kill them."

## COTEMPORARY COMMENT.

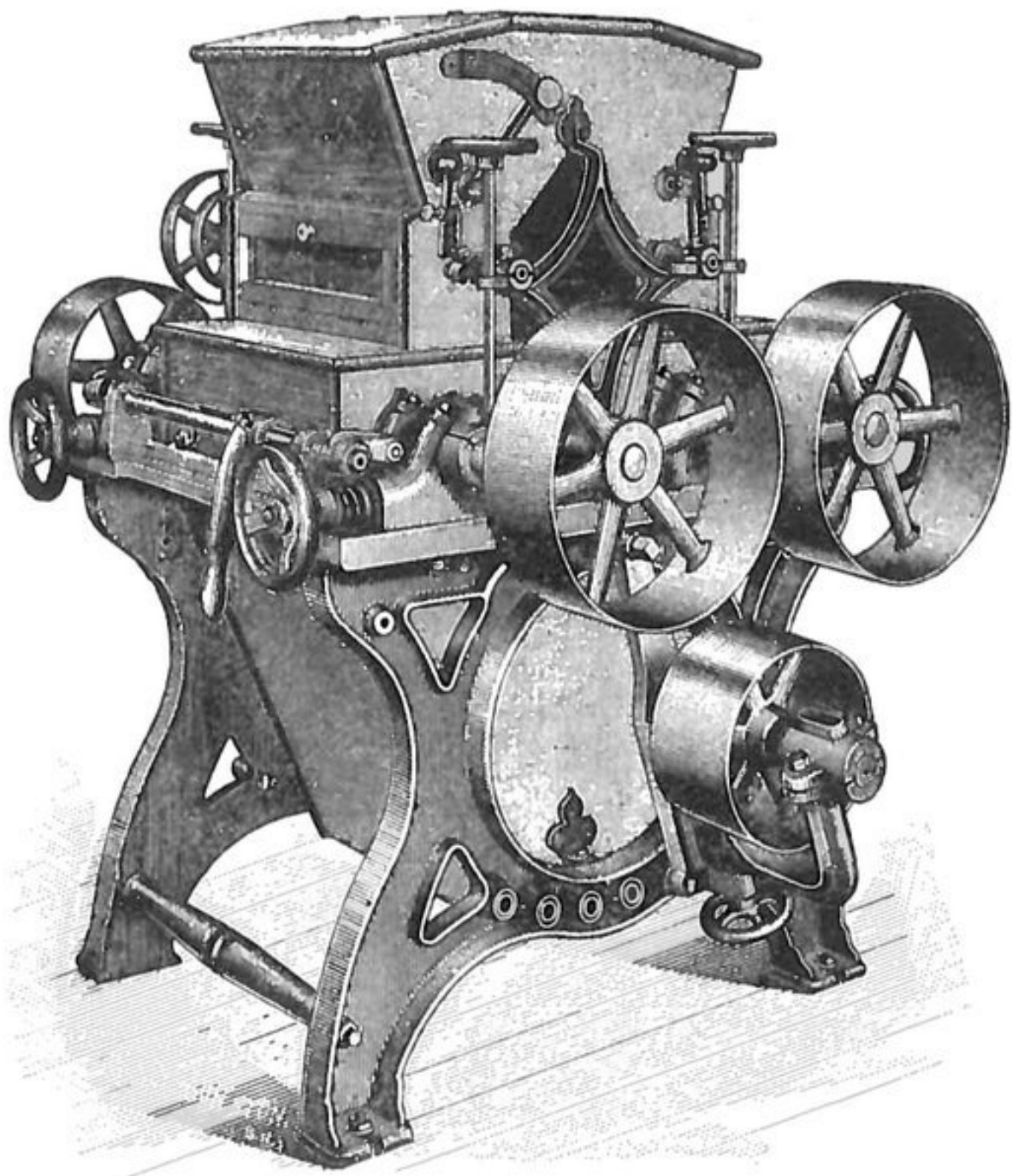
Under the head of "Market News" there is mustered into the service of grain speculation a great deal of untruth. If there comes a particularly heavy rain, word goes out that the wheat stacks are wet through and through, and that the grain is ruined. If the rain comes on while the grain is in the field in shock, the reports will have the grain growing until the growth will literally sew the bundles one to another, as if stitched together with a million wires. It was claimed by high authorities that the late rains had reduced the quality of all northwest spring wheat at least a grade. The inspections show on the contrary that the damp wheat comprises only 5 per cent. of all that comes in, that is enough so to miss a grade.—*Minneapolis "Market Record."*

The consensus of opinion of the people in this country and abroad on the question whether the tariff tax is paid by the American consumer, or the foreign manufacturer, is most happily expressed in the satisfaction with which the McKinley tariff bill is regarded by the masses in this country, and the violent deductions to which it is subjected abroad. Abroad, the fact that the tax is paid by the foreign manufacturer is recognized, and hence the bill is denounced in violent terms. Does any one suppose for a moment that, if the foreign manufacturer understood that the American consumer of his products paid the tax, he would raise any objection to the amount levied? They would have no motive for doing so, except pure philanthropy, which has never been a distinguishing feature of international commerce, and is certainly not an adequate cause for the foreign outburst of indignation over the subject.—*Kansas City "Commercial."*

A Manitoba special reports the wheat there even poorer than expected; the damage done by rain after harvest was very great, and not a car in a hundred will grade No 1.—*Chicago "Daily Business."*

The week's advices in regard to the growing wheat crop are nearly uniformly favorable. In a few instances, as previously, early sown grain where it has made unusual growth is said to have developed something of fly, but we see no evidence of any considerable extent of such drawback yet.—*Cincinnati "Price Current."*

The November Pansy is a dainty flower. It is full of taking sketches by favorite authors and beautiful illustrations by well-known artists. The price is only 10 cents a copy or \$1 a year. Address D. Lothrop Co., 364 and 366 Washington street, Boston, Mass.



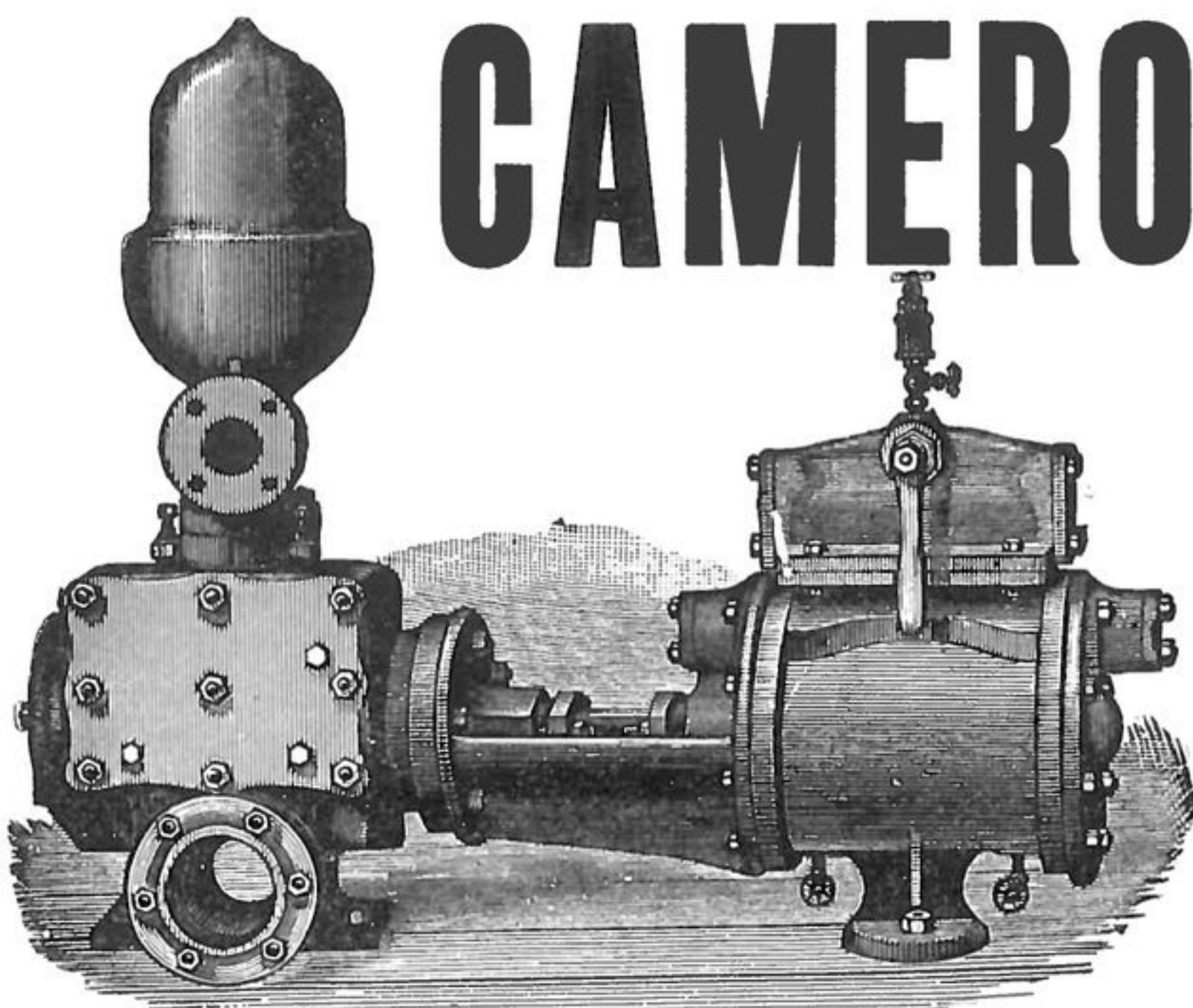
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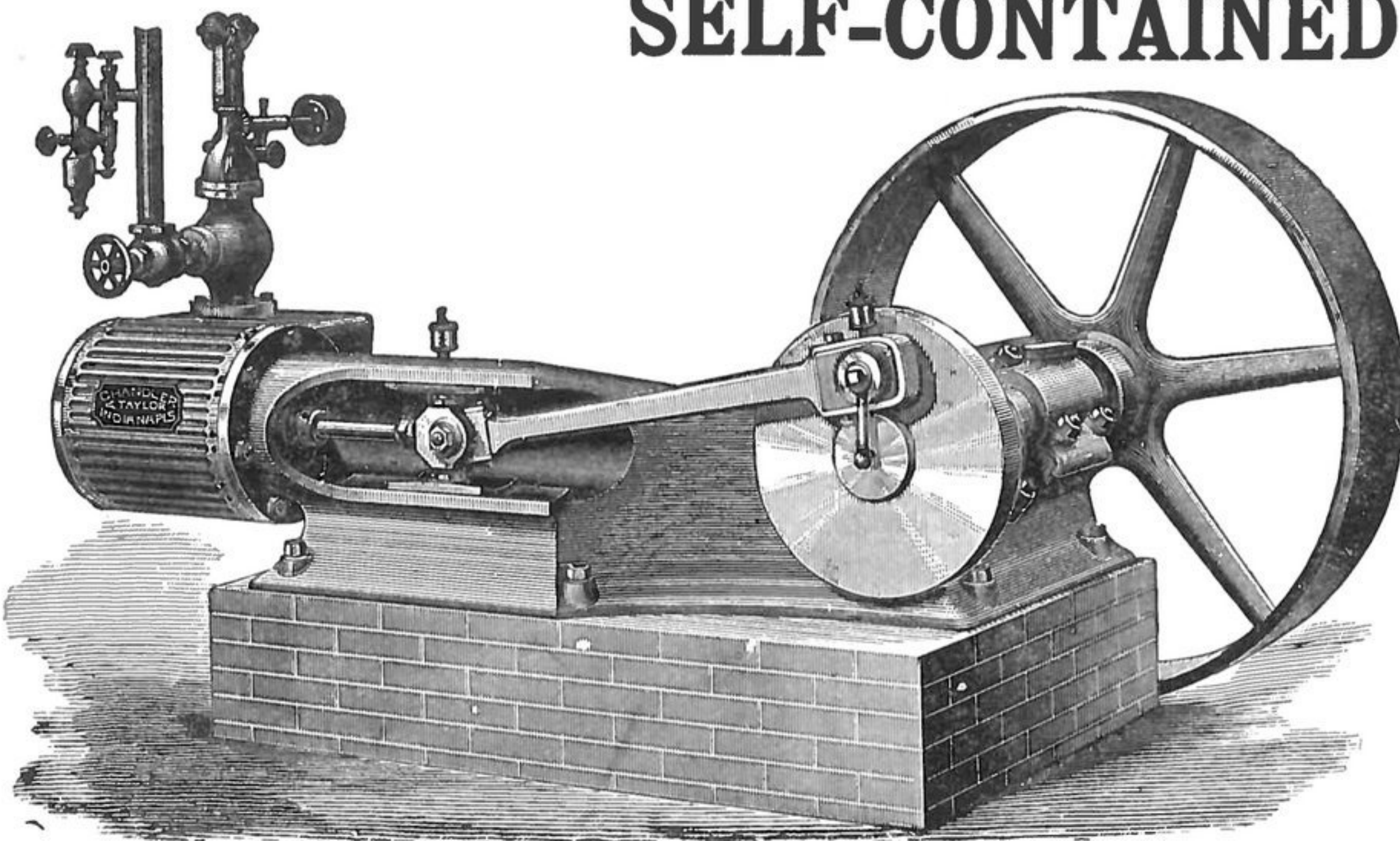
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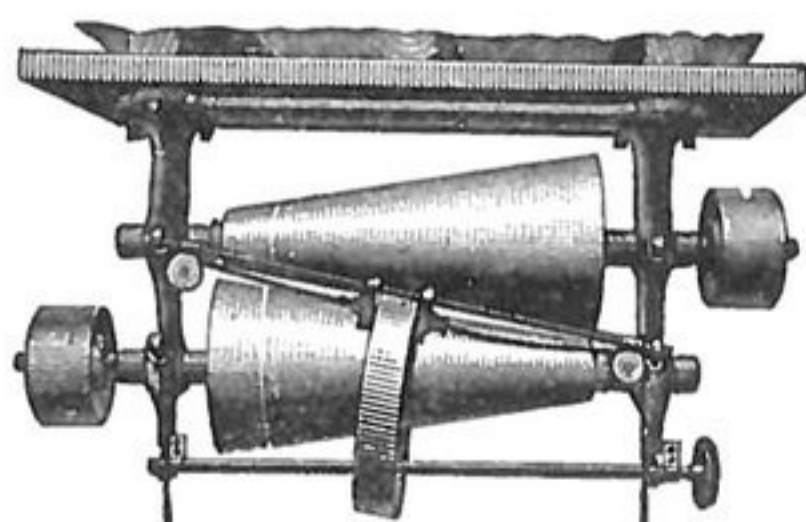
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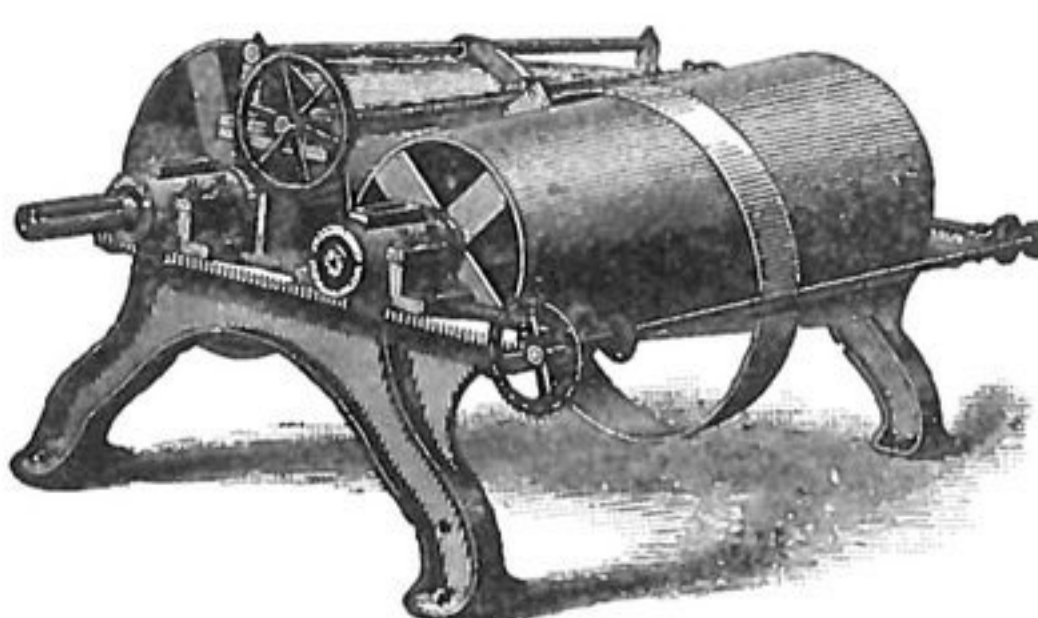
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EVANS FRICTION CONE CO., 85 Water St., BOSTON.





OFFICE OF THE MILLING WORLD,  
BUFFALO, N. Y., Nov. 1, 1890.

Friday of last week brought more activity and irregularity in the markets, with lower markets on bear news and on realizing. In New York October wheat closed at \$1.08½, with Atlantic port receipts 85,617, exports 1,451, and options 4,560,000 bushels. A London report made all the European wheat crops better excepting that of Portugal, which is deficient in both quality and quantity. October corn closed at 57½c., with receipts 76,524, exports 83,926, and options 846,000 bushels. October oats ruled at 48¼c., with receipts 181,277, exports 12,910, and options 400,000 bushels. Wheat flour was dull and the buyers were holding off on the break in wheat. Receipts were 9,452 sacks and 31,609 barrels, and exports were 5,032 sacks and 12,516 barrels. Sales could not be made without concessions. The minor lines were featureless.

Saturday brought stronger markets, on western buying led by Hutchinson, on covering by shorts in face of increasing receipts, and on a decline in silver which is now equal to 15c. a bushel on wheat from the highest point on silver, and enables England and Europe generally to buy Indian and Russian wheats 15c. a bushel lower than when silver was at 121, top, against 96, bottom, about a year ago. October wheat closed at \$1.07½, November at \$1.07½, and December at \$1.08½, with receipts 57,535, exports 35,370, and options 2,344,000 bushels. The bears propose to use the decline in silver to knock wheat below the "dollar notch." October corn closed at 58½c., with receipts 41,053, exports 55,341, and options 760,000 bushels. October oats closed at 48¼c., with receipts 124,622, exports 16,094, and options 470,000 bushels. Wheat flour was dull, unchanged and neglected, with holders a little steadier, and buyers stoutly waiting for another break in wheat. Receipts included 10,300 sacks and 29,557 barrels, and exports 1,500 and 3,193 barrels. One New York firm's circular said, concerning wheat: "Within a radius of 700 miles from Chicago the American wheat shortage of near 100,000,000 bushels is located, consequently the 25,000,000 people within that circle believe in higher prices. East of the Rocky Mountains we believe this season's crop was not over 340,000,000 bushels in weight, or but fractionally over consumptive demand. Exports since July 1st have been near 18,000,000, and now average about 1,000,000 per week. Can we keep it up the coming 35 weeks? The visible on land and sea has decreased 6,000,000 since harvest and is 8,000,000 less than a year ago; the amount afloat decreased near 5,000,000 the past three weeks, yet Great Britain says she is independent of us. We believe seaboard stocks Jan. 1 will not be a quarter of those a year ago, winter wheat stocks less, and the total visible but a third that in January, 1887, then 63,000,000. Great Britain and France are bare of choice wheat, and their home samples sell from 5c. to 20c. per bushel less than American wheat. They must secure a small supply of choice wheat for mixing. Where can they get it? India and Russian shipments show a falling off; soon the Danube will close." The other lines were featureless.

Monday brought a firmer opening, on better cables, and a lower closing, on large movement and freer selling in the West. October wheat opened at \$1.07½ and closed at \$1.06¾, with receipts 139,110, exports 3,504, and options 2,100,000 bushels. The report of a reduction of 29,000,000 bushels in the Russian wheat crop had no effect on prices. October corn closed at 58½c., with receipts 268,223, exports 61,281, and options 728,000 bushels. October oats closed at 48c., with receipts 214,130, exports 4,168, and

options 225,000 bushels. Wheat flour was dull and nominally unchanged, with the trade holding off for a break. Receipts were 12,126 sacks and 45,469 barrels, and exports 20,530 sacks and 6,968 barrels. The minor lines were unchanged. The visible supply in the United States and Canada was:

	1890. Oct. 25.	1889. Oct. 26.	1888. Oct. 27.
Wheat .....	19,715,025	24,507,518	33,476,646
Corn .....	7,206,443	9,386,670	11,164,921
Oats .....	4,123,289	7,093,334	8,227,646
Rye .....	630,605	1,284,101	1,377,213
Barley .....	4,809,282	2,045,209	1,647,835

Tuesday was the "up" day in the markets. Owing to lighter receipts, covering of shorts, improved export demand and stronger cables, October wheat opened at \$1.06¾ and closed up at \$1.08½. Receipts were 92,813, exports 11,158, and options 2,000,000 bushels. One New York estimate made the exportable surplus on this crop only 60,000,000 bushels, and about 30,000,000 bushels have already gone out; only 30,000,000 bushels remain for export. This estimate, with the fact that Russian shipments are decreasing, made the bulls strong and the bears weak. October corn closed at 59¼c., with receipts 107,168, exports 94,175, and options 986,000 bushels. October oats closed at 48½c., with receipts 136,982, exports 21,252, and options 175,000 bushels. Wheat flour was dull at the opening and stronger at the closing by 5@10c. Receipts were 11,326 sacks and 48,287 barrels, and exports 13,484 sacks and 20,461 barrels. British exporters were out of the markets, their limits being away below New York prices. The minor lines were firm and strong generally.

The following shows the amount of wheat and flour, together with the amount of corn, on passage to United Kingdom, for ports of call or direct ports for the weeks mentioned:

	1890. Oct. 28.	1890. Oct. 21.	1890. Oct. 29.
Wh. & flour, qrs.	1,713,000	1,782,000	1,808,000
Corn, qrs. ....	361,000	419,000	395,000

The following shows the amount of wheat and corn on passage to the Continent for the past week, the previous week, and for the same week last year:

	1890. Oct. 28.	1890. Oct. 21.	1889. Oct. 29.
Wheat, qrs. ....	620,000	632,000	422,000
Corn, qrs. ....	110,000	108,000	178,000

India wheat to United Kingdom..... 55,000  
India wheat to Continent..... 35,000

The imports into the United Kingdom for the past week and the previous week and for same week last year:

	1890. Oct. 28.	1890. Oct. 21.	1889. Oct. 29.
Wheat, qrs. ....	279,000	283,000	299,000
Corn, qrs. ....	128,000	140,000	135,000
Flour bbls. ....	203,000	151,000	144,000

Wednesday was the inevitable "down" day in the cereal lines. On account of realizing and hammering by scalpers, October wheat closed at \$1.07½, with receipts 172,589, exports 3,226, and options 4,000,000 bushels. Northwestern dispatches were "bull," but the markets refused to rise. October corn closed at 59½c., with receipts 137,637, exports 74,315, and options 1,928,000 bushels. Exporters were in the market on higher cables. October oats closed at 48¾c., with receipts 143,095, exports 15,458, and options 195,000 bushels. Buckwheat grain was nominally 60c. Rye was in fair demand for export. Quotations were: "Western, 70@74c., for ungraded; 70½@71½c., for Canada; 78@76c., for State, in full loads; car lots, track, 68@73c. Barley was again strong and in good demand, with sales of ungraded Canada on the spot at 90@92c. Graded quoted firmly at advanced quotations. No. 1 Canada, \$1.00; extra do, 94c.; No. 2 do, 90c.; No. 2 Milwaukee, 83c.; Western, 80@90c. asked. Malt was nominally higher on new, but market not yet established, as offerings were small, while old was selling slowly at old prices, which were as follows: 75@82½c. for two-rowed, 80@85c. for six-rowed, 85½@92c. for county-made Canada and 92½@1.00 for city do. Mill feed was not so strongly held and was very slow. Quota-

tions: 40 and 60 lbs., 85@90c.; 80 lbs., 90@95c.; 100 lbs., \$1.10@1.15.

Wheat flour was generally slow and heavy. Among the sales were the following: Clear winters, \$4.75@5.00, and fancy old clear springs, at \$5.00; patent springs, new, \$5.60; straight winters, \$5.15; sacks low grades, \$3.50; rye mixtures, \$4.75; small lots of fancy, \$5.75; winter patents sold at \$5.60; straight winters, \$5.10; extra No. 2 winter, \$4.05; winter straights, \$5.10@5.15, and car lots spring patents, \$5.75; car lots spring patents, \$5.50 for new, and "old" were quoted as high as \$5.85 for standards to \$6.10 for fancy; winter straights, \$5.10 by one house, which was unchanged. Receipts were 11,114 sacks and 31,163 barrels, and exports 7,228 sacks and 9,789 barrels.

Rye flour was firm and in good demand at \$4.00@4.30. Buckwheat flour was dull at \$2.00@2.25 for the range. Corn products were higher on bag stock and more active on barrels. Quotations were: Western and Southern in bbls., \$3.00@3.20; brandywine, \$3.20; granulated yellow, \$3.25@3.50; granulated white, \$3.50@4.00; coarse bag meal, \$1.10@1.13; fine yellow, \$1.20@1.22; fine white, \$1.25@1.30 for city; Southern, \$1.10@1.60 for coarse to granulated; brewers' white, \$1.42.

Thursday brought an upward turn in the markets. October wheat closed at \$1.08½, with receipts 17,000, exports 64,000, spot sales 11,000, and options 952,000 bushels. October corn closed at 59¼c., with receipts 24,000, exports 34,000, spot sales 124,000, and options 2,528,000 bushels. October oats closed at 49c., with receipts 113,000, spot sales 152,000, and options 115,000 bushels. Wheat flour was firm, with receipts 19,000, and sales 16,000 packages. Quotations included: Low extra, \$3.70@4.15; city mills, \$3.15@5.40; city mill patents, \$5.50@6.25; winter wheat, low grades, \$3.70@4.15; fair to fancy, \$4.25@5.40; patents, \$4.90@5.75; Minnesota clear, \$4.50@5.25; straight, \$4.90@5.60; Minnesota straight patents, \$5.25@6.00; rye mixtures, \$4.30@4.90; superfine, \$3.15@3.85. The output of the Minneapolis mills last week was 157,850 barrels. The minor lines were generally firm, though quiet.

## BUFFALO MARKETS.

Buffalo, N. Y., November 1, 1890.

The market is generally firm. Trade is fair. Prices were as follows:

WHEAT—The market was firm here to-day, with sales at \$1 10¼ for No. 1 hard; \$1.04½ for 10,000 bu No 1 Northern c. i. f.; \$1.08 for 2 cars old No 2 Northern; \$1.04 for 8 cars No. 2 red; \$1.03½ for 1 car do; \$1.00 for extra No. 3 red; \$1.02 for 3 cars No. 1 white; 99@99½c for extra No. 2 white; 96c for No. 3 white; 98c for No. 1 Oregon white on track, and 96c for mixed winter, on track. CORN—Sales were made early of 16,000 bu No 2 yellow at 58¾c and 26 cars No 2 corn, at 57c on track, but the market closed at 59½c in store for No. 2 yellow, and 59½c on track; 58¾c for No. 3 yellow; 57¾c for No 2 corn and 57¾c for No. 3 corn. OATS—Sales of No. 2 white were made at 51c on track and at 47½c for 2 mixed; No. 2 white, in store closed at 51½c; No 3 do at 51c, and No 2 mixed at 48¾c. BARLEY—No No. 1 Canada here. Quotations are 87@91c for No. 2 Canada; 84@86c for extra 3 do; 80@83c for No 3 do; 76@80c for 2 Western; 72@75c for extra No. 3 do and 63@71 for No. 3 do. RYE—The market is entirely nominal at 72@74c for No. 2. OATMEAL—Akron, \$7.20; Western, \$6.95 per bbl; rolled oats, in cases, 72 lbs, \$3.85. CORNMEAL—Coarse, \$1.15@1.20; fine, \$1.20@1.25; granulated \$1.75 per cwt. MILL-FEED—City-ground coarse winter, \$17.00@18.90 per ton; fine do. \$18.00@....; finished winter middlings \$19.50@20.00; coarse spring do. \$19.00.

## FLOUR MARKET.

Spring Wheat.	Winter Wheat.
Patents..... \$6.25@6.50	Patents... .. \$6.25@6.50
S't Bakers'... .. @5.75	S't roller... .. 5.25@5.50
Bakers' cl'r... .. @5.25	Amber... .. 5.00@5.25
B Rye mixt... .. @4.75	Crck'r flour... 5.00@5.25
Low Grades... .. @3.50	Low grades... .. 3.50@3.75
Rye flour 3.75@4.00	Graham... .. 4.75@5.00

Buckwheat flour, \$2.75@3.00 per 100 pounds.

Retail prices 50c. above these quotations.

Wm. Huff, Cane Spring, Va., sold his flour and grist mill and 45 acres of land to W. T. Lockett and John Garst, for \$20,000. The new owners will improve the mill.



**RELIANCE OIL & GREASE CO., CLEVELAND, O..**

—MANUFACTURERS OF—

**Finest Lubricants for Milling Plants. A Challenge to the World.**

WRITE US.

"VALVE OLEINE"—675 Degrees Fire Test, Cylinder Oil.

"RUSSIAN"—Engine and Machine Oil.

"CHIEF"—Roller Mill Lubricant.

"ANCHOR"—Roller Mill Grease.

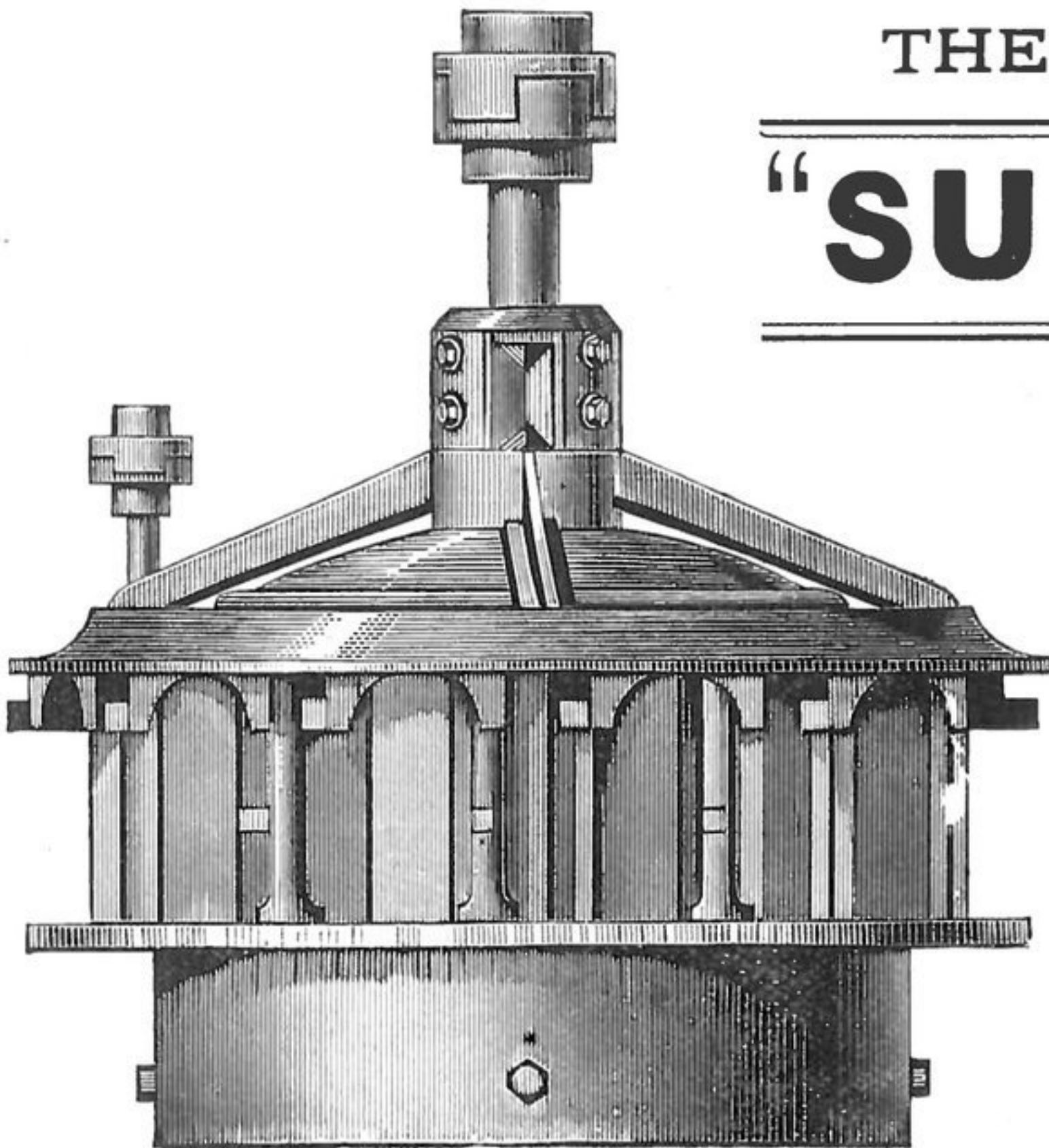
"NIAGARA"—Belt Grease.

"CHELSEA"—Scale Solvent, Best on Market.

SPECIAL  
HIGH GRADE  
PRODUCTS

AGENTS WANTED.

**FREE—SAMPLES, CATALOGUE, AND ALL INFORMATION.**



THE IMPROVED  
**"SUCCESS"**

**PERCENTAGE:**

Full Gate, - - 86.29

$\frac{7}{8}$  Gate, - - - 86.07

$\frac{3}{4}$  Gate, - - - 81.90

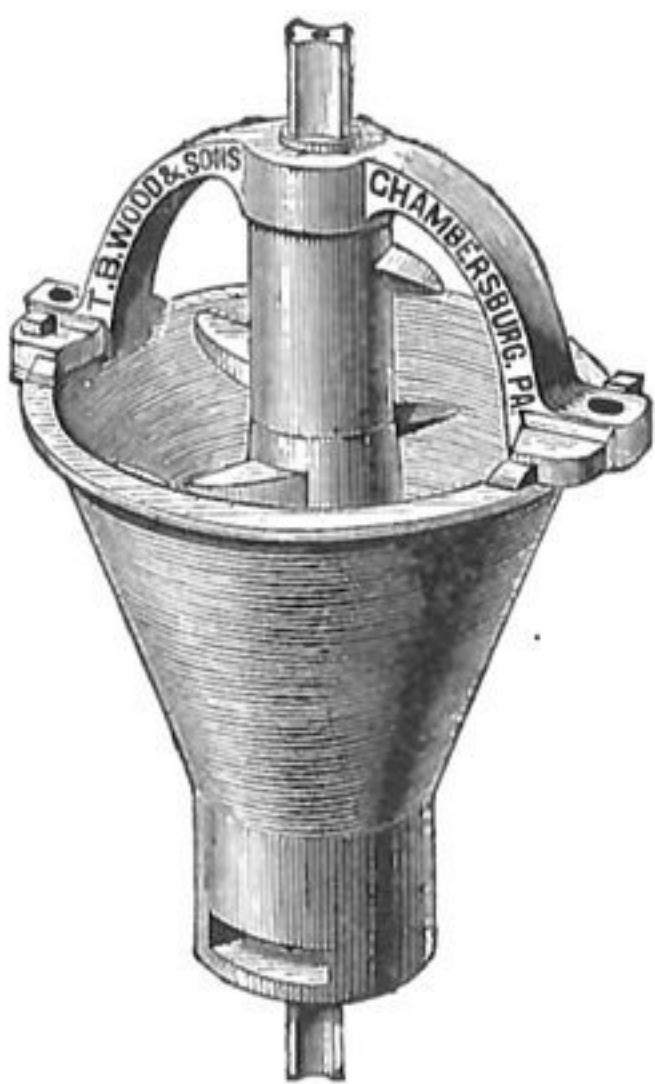
—(:O:)—

This Wheel is Both Durable and Cheap. Send for Pamphlet to

**S. MORGAN SMITH**  
YORK, - PA.

**\$15**

WILL BUY THE BEST AND CHEAPEST  
**CORN & COB CRUSHER**  
IN THE WORLD.

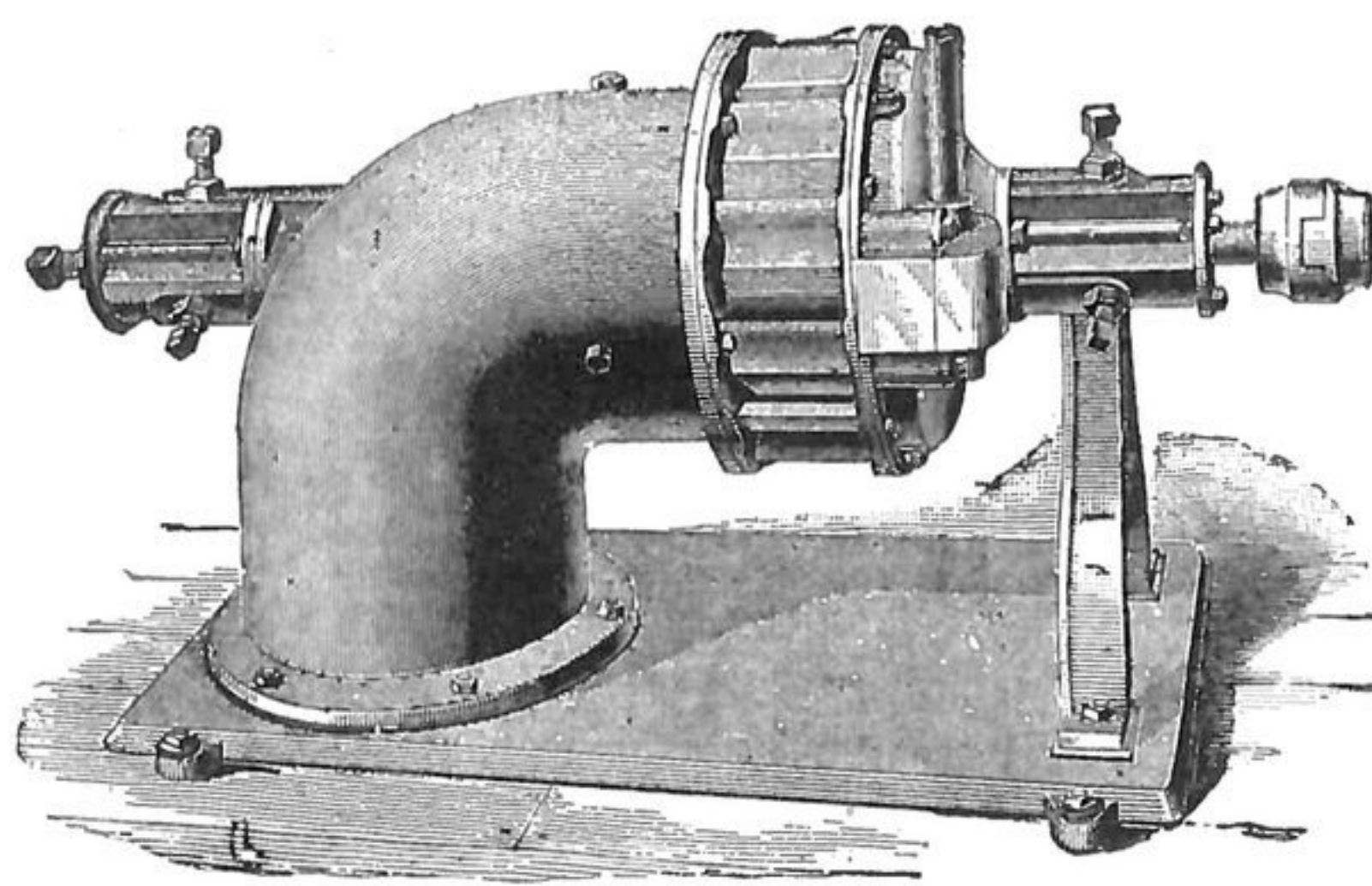
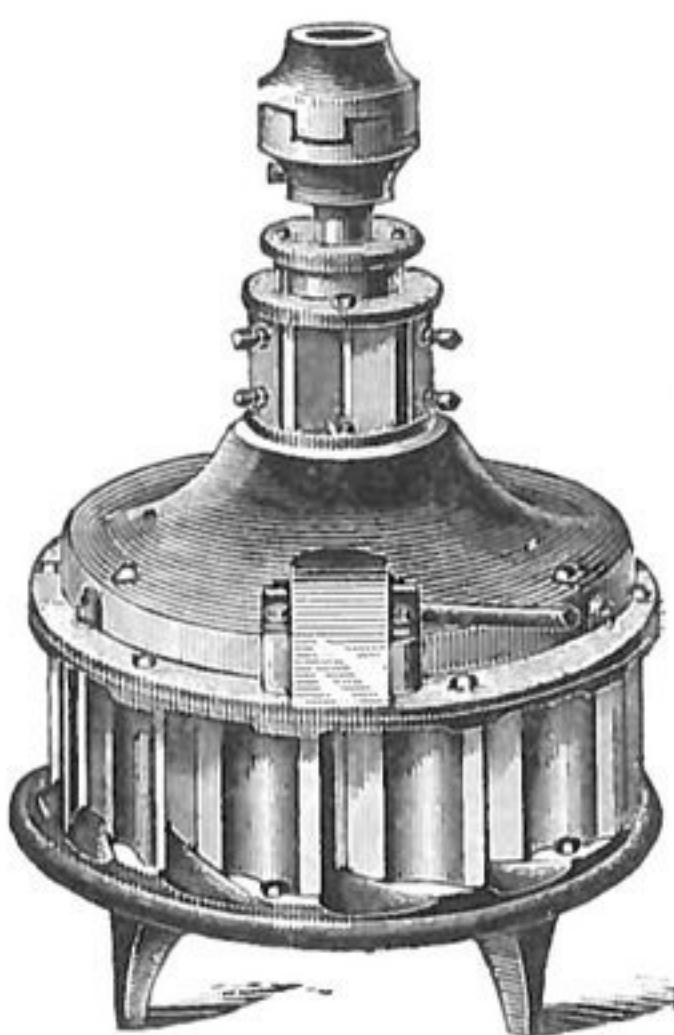


Our crushers are made of a "special quality" of material that insures years of service. Thousands of these crushers are in use throughout the United States and Canada. Send for circular, giving testimonials from millers who are using them, and know a good thing when they see it.

**T. B. WOOD'S SONS, CHAMBERSBURG, PA.**

Manufacturers of

Shafting, Pulleys, Hangers, Mill Gearing, Etc.



**BURNHAM'S NEW IMPROVED  
STANDARD TURBINE WHEEL,**  
ON VERTICAL OR HORIZONTAL SHAFT.

IT WILL PAY INTERESTED PERSONS TO INVESTIGATE THE MERITS OF THIS WHEEL BEFORE PLACING THEIR ORDER. SEND FOR NEW CATALOGUE.

**BURNHAM BROS., YORK, PA.**

**L. L. WHITLOCK,**  
Advertising Agent

FOR MANUFACTURERS.

TRADE JOURNALS A SPECIALTY.

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**QUEEN CITY PRINTING INK CO.**  
CINCINNATI, O.



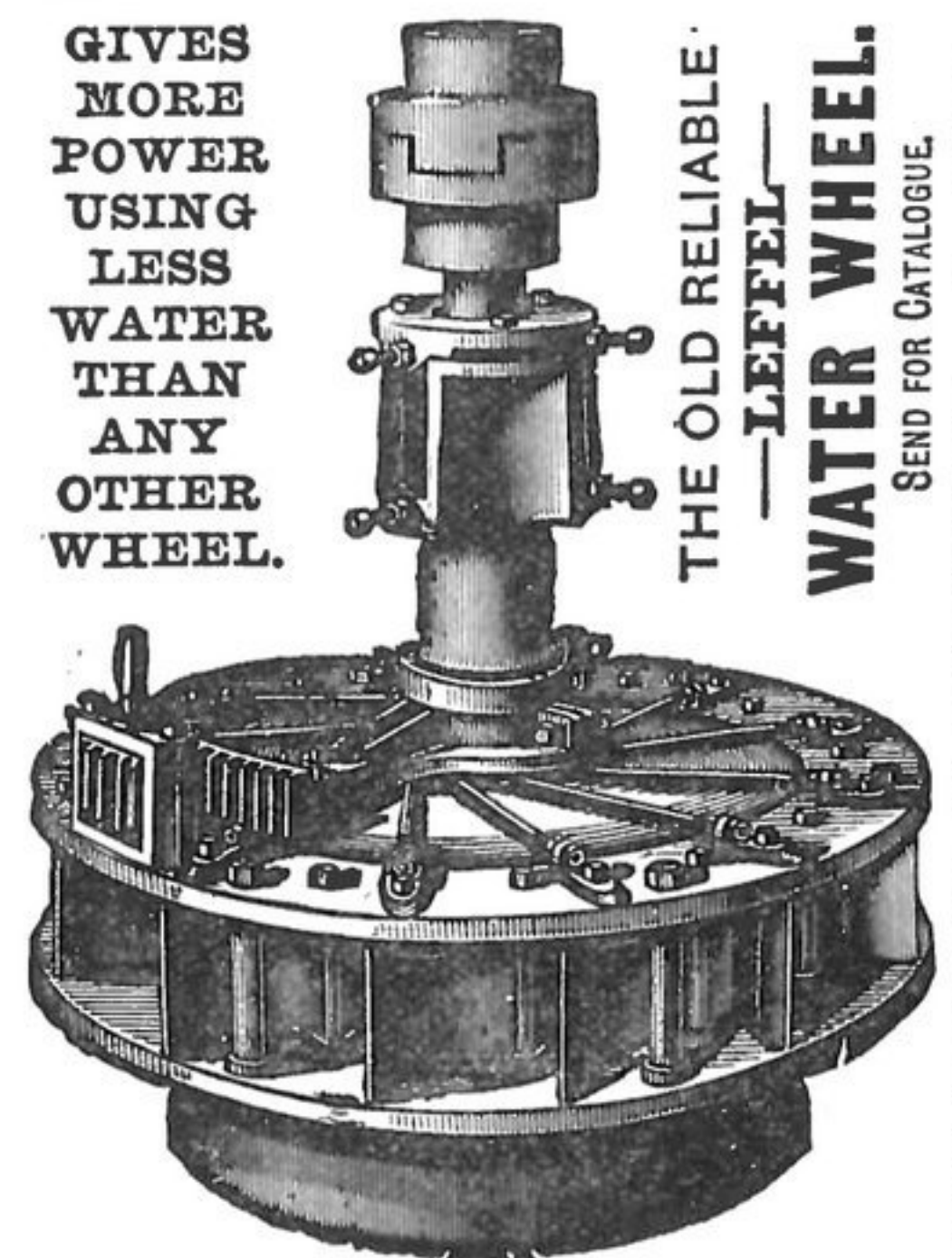
THIS WHEEL GIVES HIGH RESULTS, AND IS ACKNOWLEDGED THE BEST, MOST PRACTICAL AND EFFICIENT TURBINE MADE. FOR SIMPLICITY, DURABILITY, AND TIGHTNESS OF GATE IT HAS NO EQUAL.

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MOUNT HOLLY, N. J.

GIVES  
MORE  
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LESS  
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THAN  
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OTHER  
WHEEL.

THE OLD RELIABLE  
—LEFFEL—  
**WATER WHEEL.**  
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"ANCHOR BRAND"  
Our  
CHOICE GRADE CLOVER  
Recleaned and Bulked.

W. H. MOREHOUSE & CO.  
Wholesale Dealers in  
GRAIN, CLOVER, and TIMOTHY,

Hungarian, White Clover, Red Top,  
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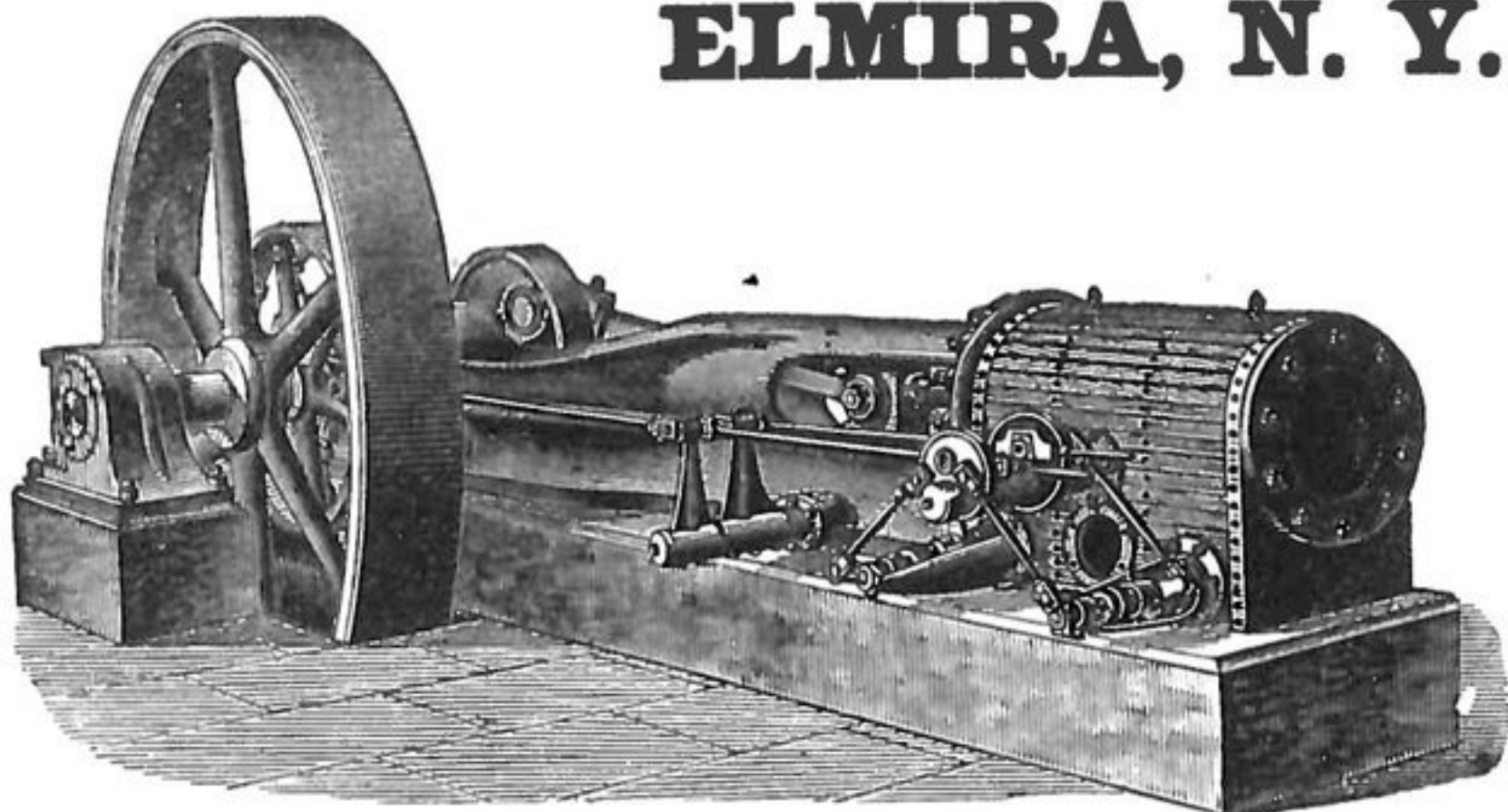
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SHAFT GOVERNOR COMBINED WITH CORLISS WRIST-PLATE.

ECONOMY OF FUEL.

REGULATION EQUAL TO ANYTHING IN USE.

B. W. Payne & Sons,  
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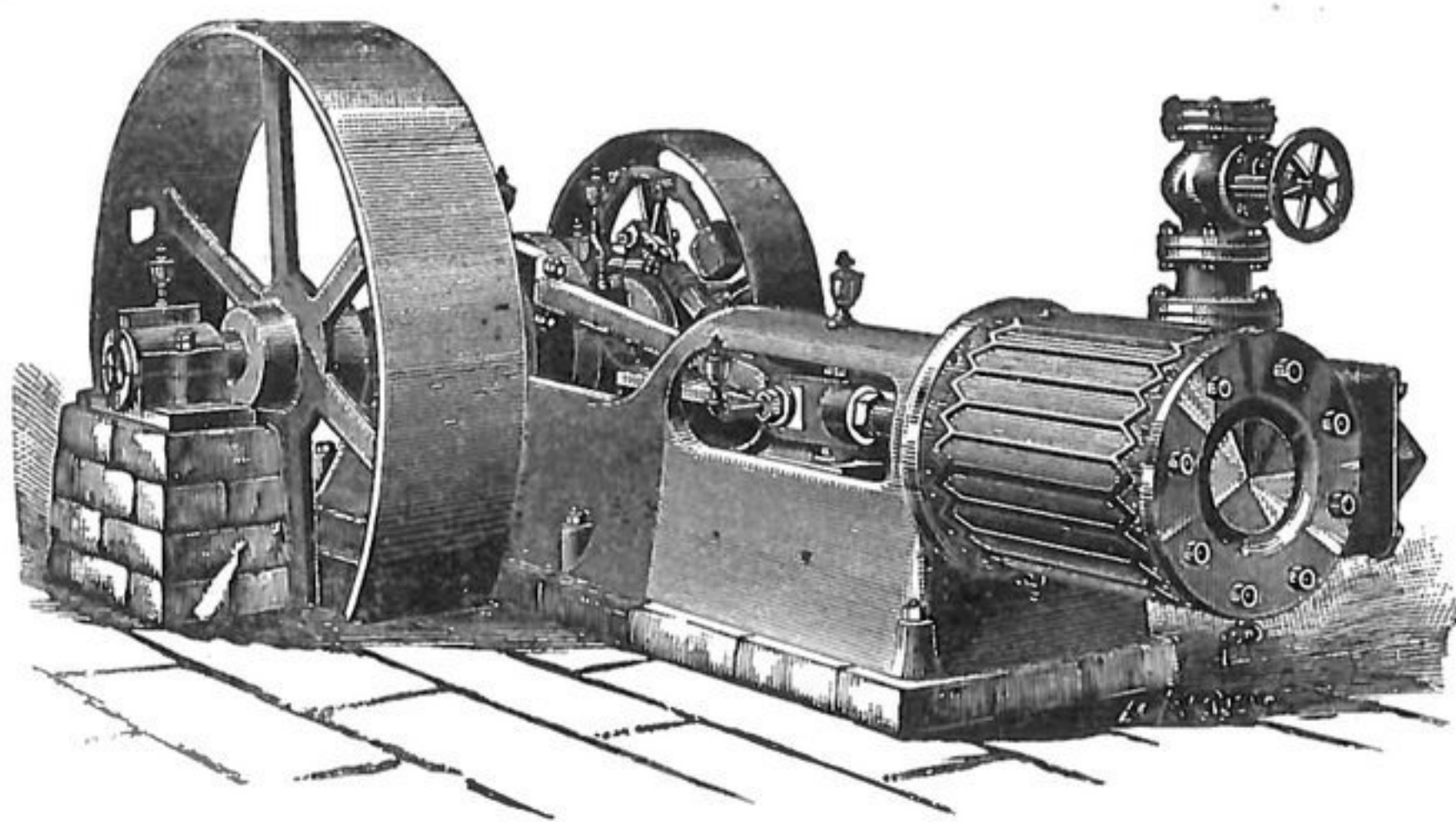


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AUTOMATIC ENGINES FROM 2 TO 200 HORSE POWER.  
Economic Power Plants



Especially Adapted to Electric Lighting and  
WOOD-WORKING ESTABLISHMENTS

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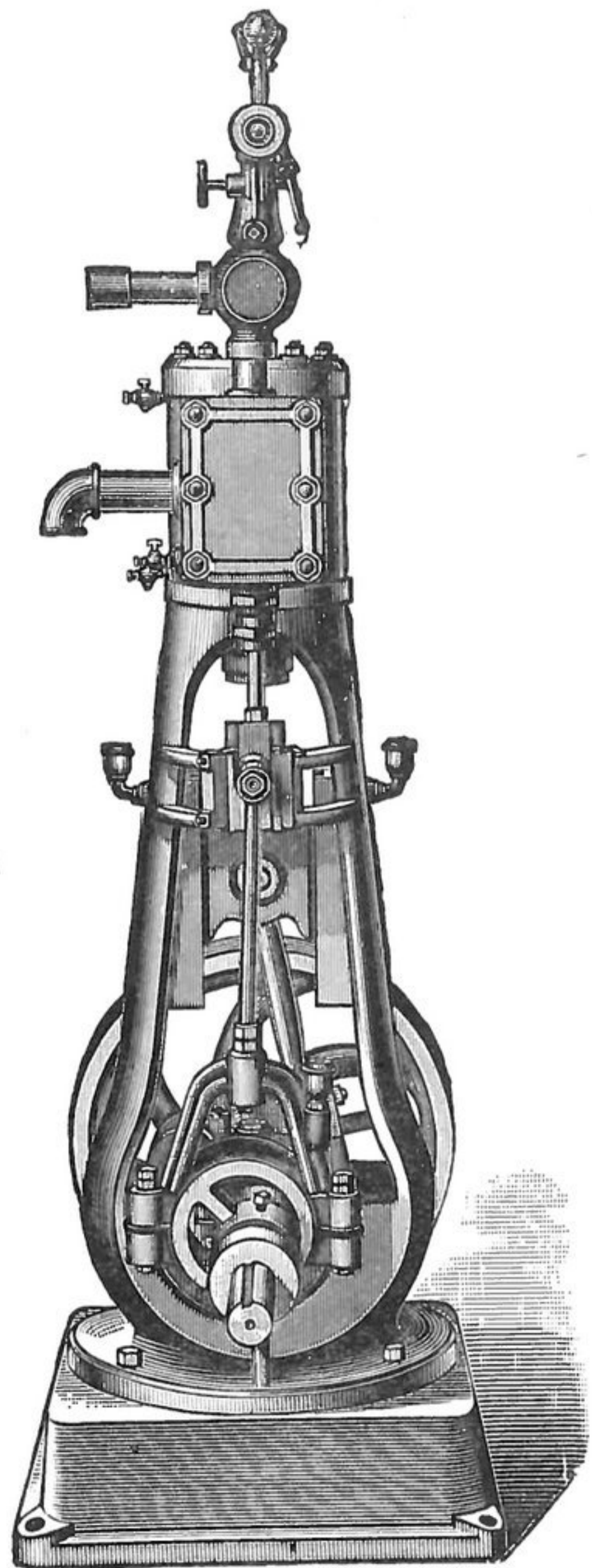
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Please Send for Our New Catalogue and Mention "The Milling World."



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## AUTOMATIC VERTICAL ENGINES



Especially adapted for Small Electric Light Plants.  
Perfect Regulation. Reversible Link Motion for Ma-  
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Metal Patterns, Models and Machinery Built to Order  
Send for Prices and Specifications.

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CUTS AS WELL AS STONE ITSELF.

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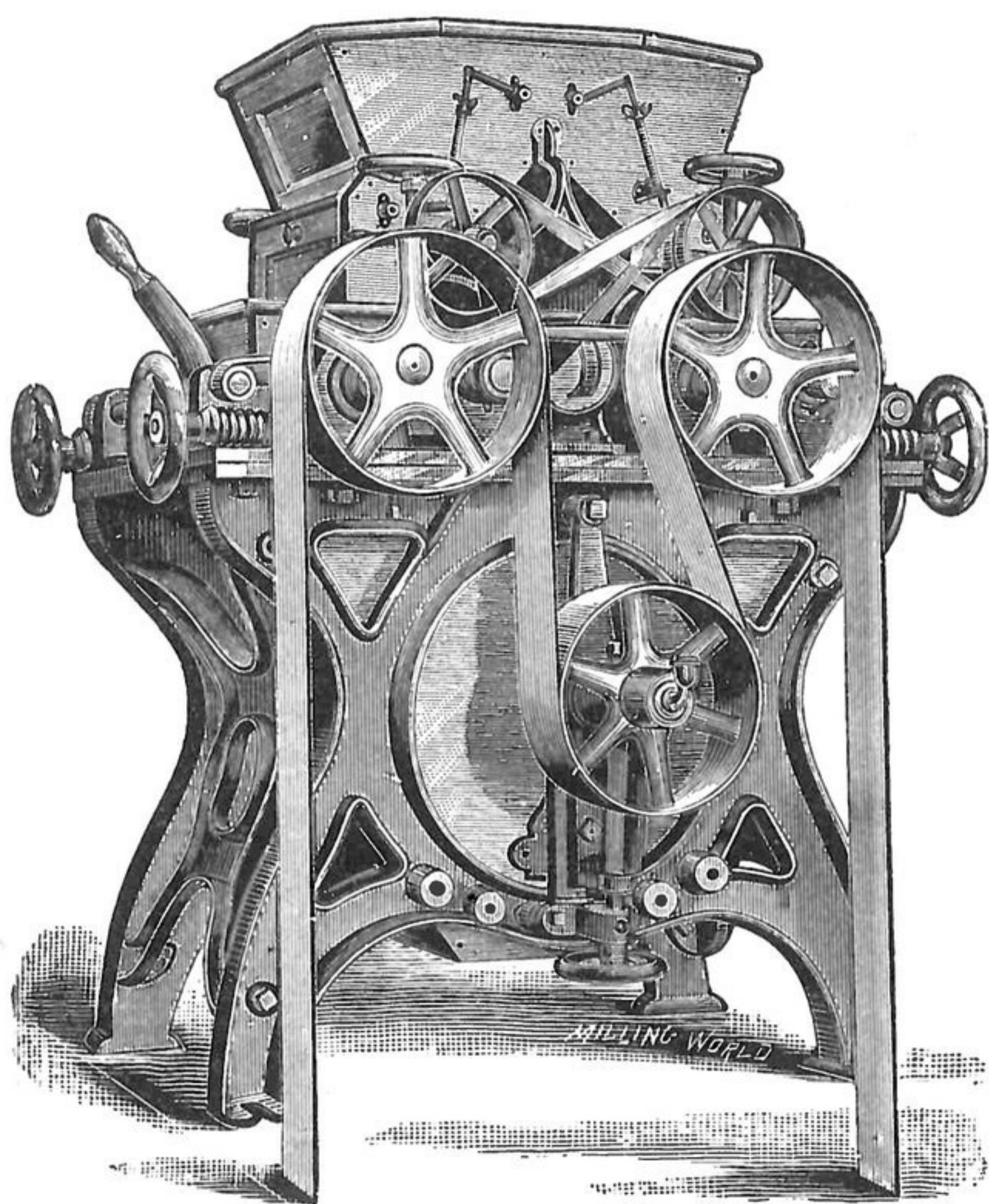
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PATENT

BARREL HEATER

For all  
kinds of coop-  
erage. Thousands  
in use in all parts of the  
U. S. Send for Circular.

JOLIET STOVE WORKS. JOLIET ILL.

# JOHN HUTCHISON MFG. CO., Mill Builders and Mill Furnishers.



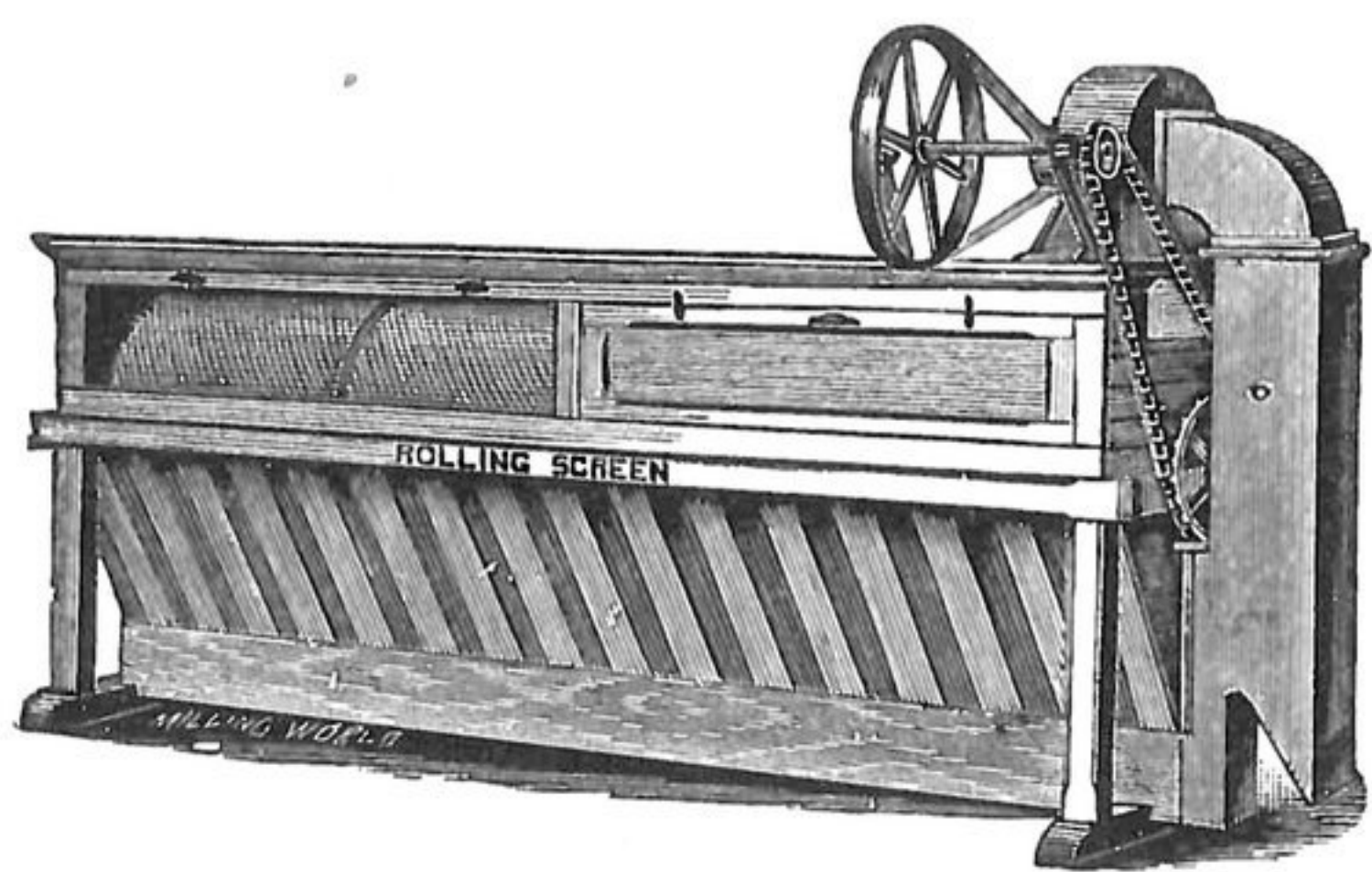
"The Rickerson." The original six inch 4 Roller Mill. We now own the patents on this mill and after greatly improving the mill manufacture them in four sizes:

6x12 inch.

6x15 "

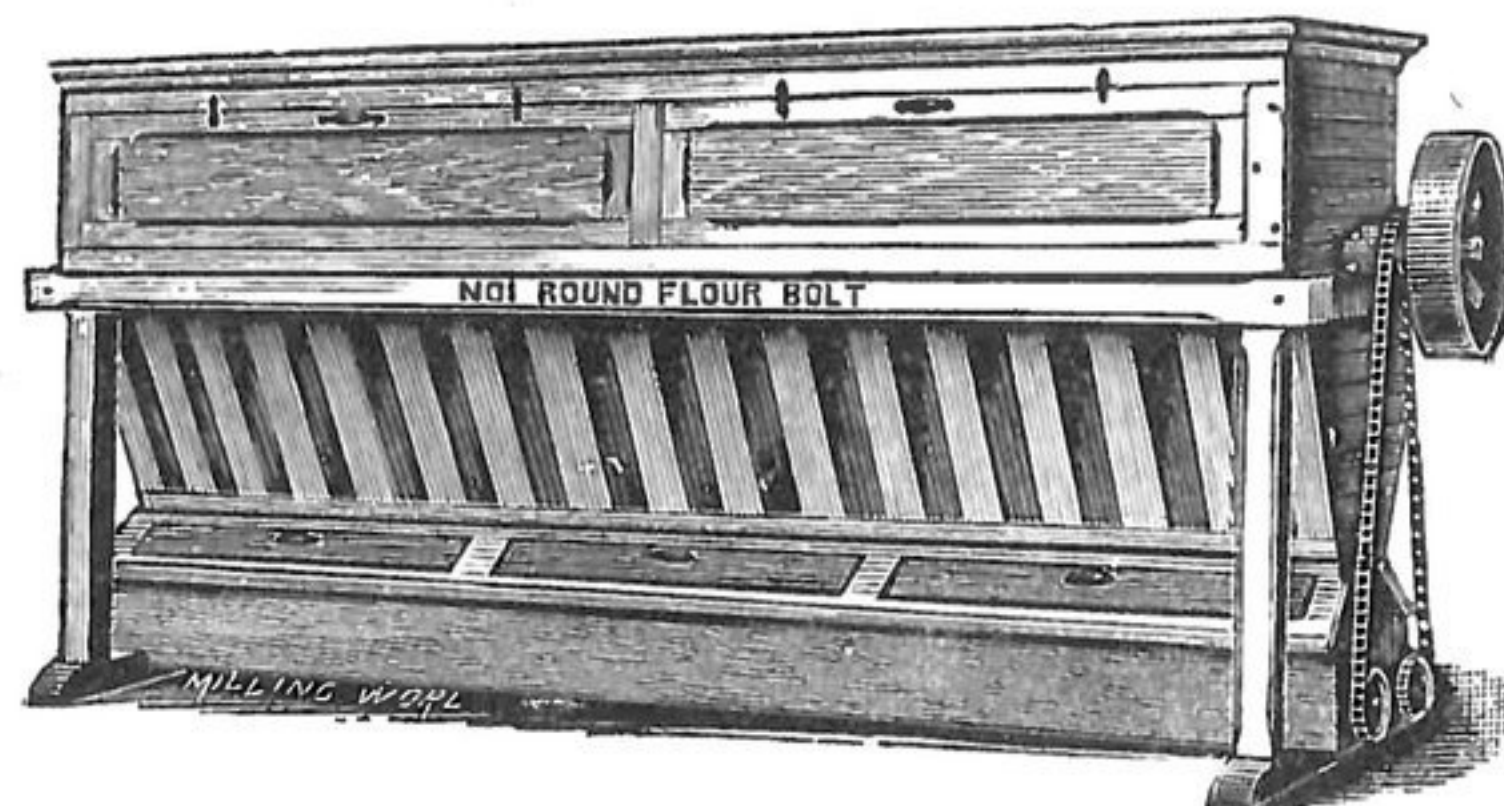
6x18 inch.

6x20 "

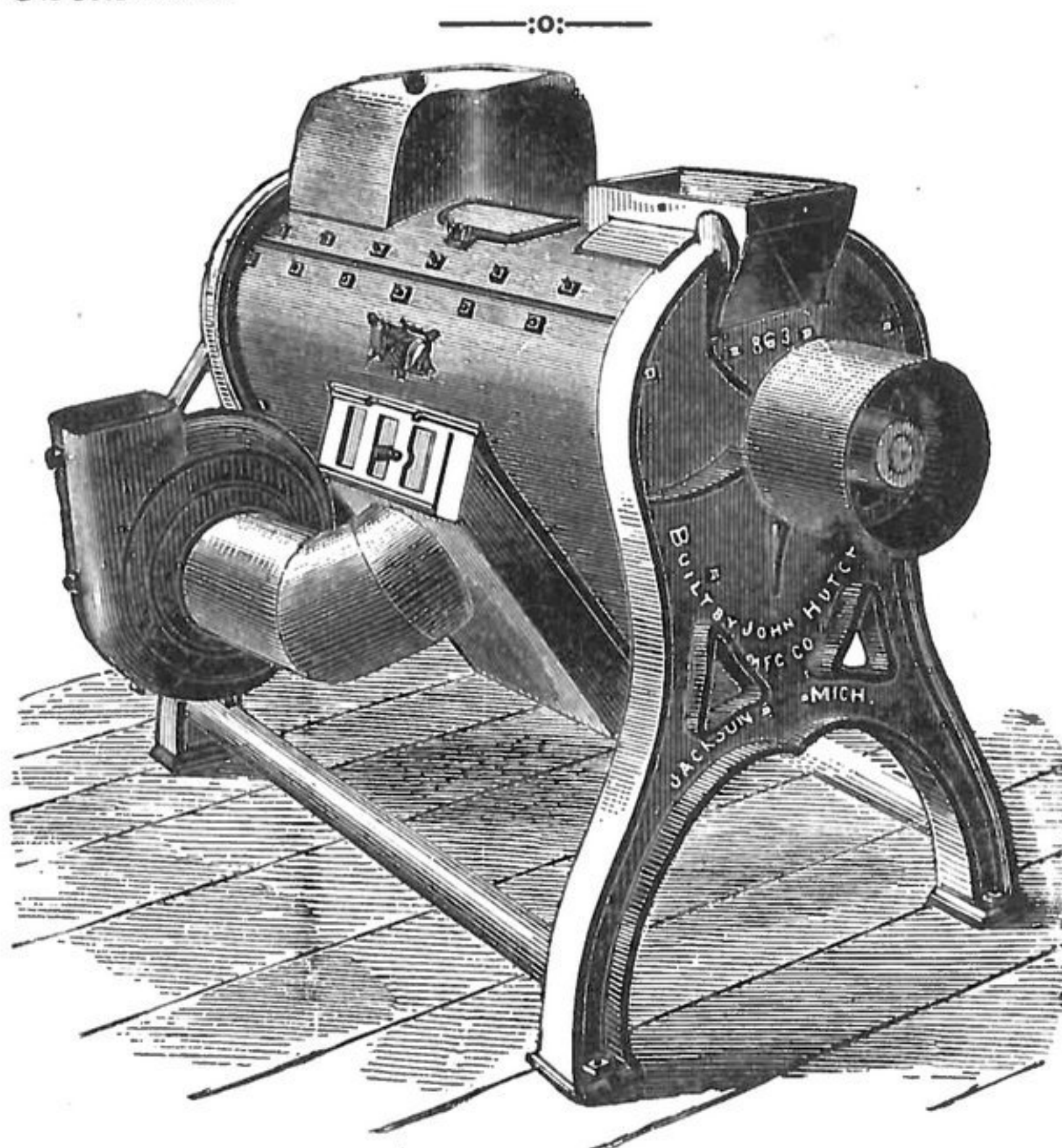


The above cut represents our New Rolling Screen, which is absolutely dustless and has as much scouring qualities as any two scouring machines now being made.

Send for Estimates for Our Full Roller Mills of any Capacity.



The above cut shows our New Round Slow Running Flour Bolt. We also build a Cylinder or Round Scalping Reel and we have lately built a number of new mills of medium capacity, using our Roller Mills, our Round Flour Bolts and Scalping Reels, getting better results than is usually obtained.



Hutchison's New Dustless Iron Corn Sheller, especially adapted for Mill and Elevator use.

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ELEVATOR BUCKET.

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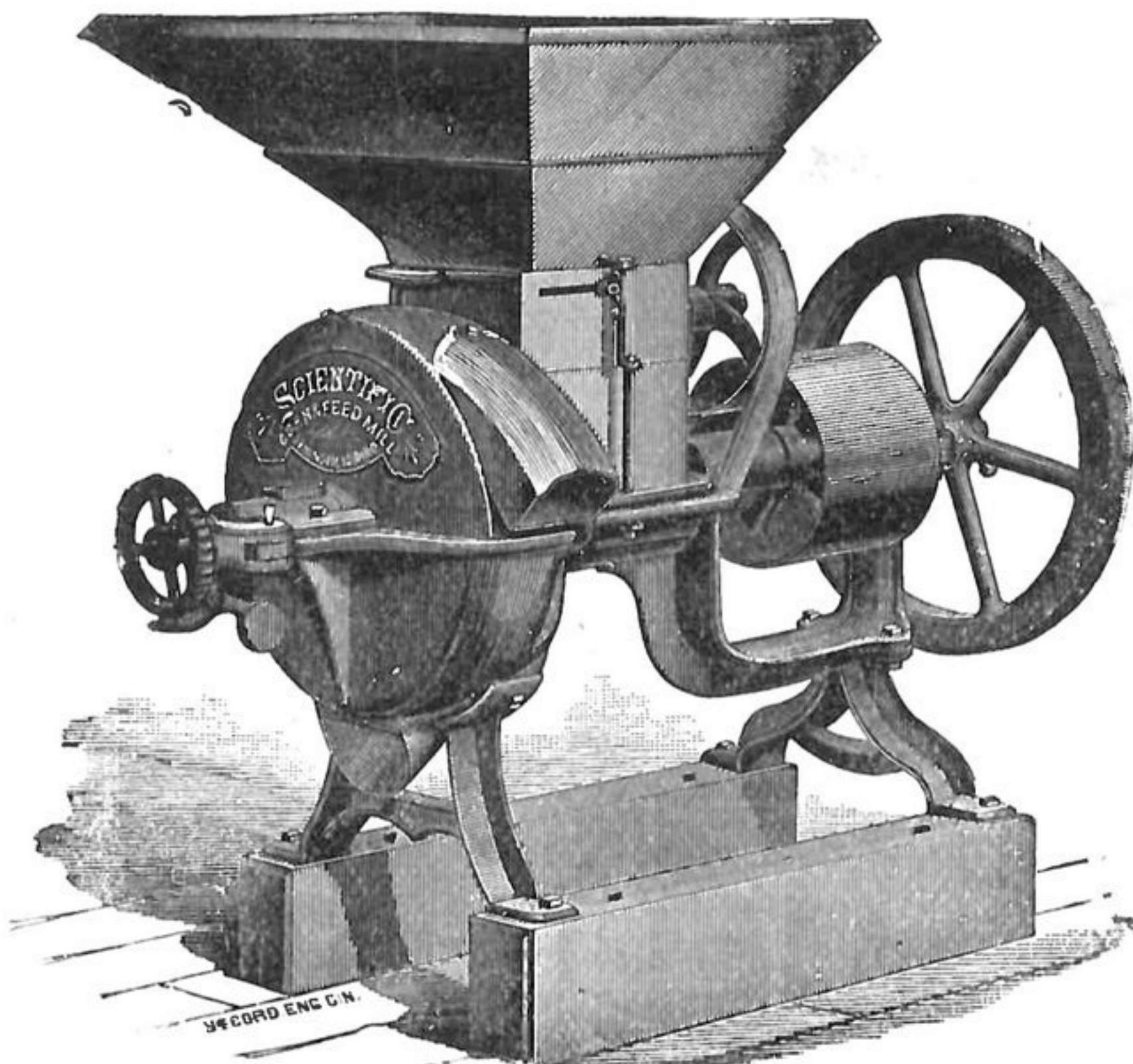
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## BURR AND ESOPUS MILLSTONES

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## —THE SCIENTIFIC— GRINDING MILL.

POSITIVELY THE BEST MILL ON EARTH.

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## GRINDING PLATES A SPECIAL METAL

*Hard as Steel, Guaranteed to Grind from Five to Eight  
Thousand Bushels before wearing out.*

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## THE FOOS MFG. CO.

SPRINGFIELD, OHIO.

## THE SALEM BUCKET STILL ON TOP!



—AND IS LIKELY TO—

## HOLD ITS PLACE

As Leader of Buckets because it proves to be

## THE BEST

And the cheapest in the long run after all.

Send for New Catalogue and Revised Price List.

**W. J. CLARK & CO., SALEM, OHIO.**  
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